Volume V, No. 3 March 1952 Issue No. 19

The Review of Metaphysics

A PHILOSOPHICAL QUARTERLY

CONTENTS

ARTICLES

Richard L. Rubin, A Sketch of a Theory of Knowledge ____ 335
Moshe Aldenmann, Quantum Mechanics and Freedom ____ 351
Hans Wood, Some Contemporary Attitudes toward Philosophy of Nature ____ 375
William Barrett, On Whitehead's Theory of Prehension ____ 393

The Review of Metaphysics

A Philosophical Quarterly

Edited by
PAUL WEISS

Managing Editor: Louis O. Mink
Assistants: William L. Dunn, James C. Haden, Oliver A. Johnson,
Irwin C. Lieb, Thomas H. Mott

The Review of Metaphysics is devoted to the promotion of technically competent, definitive contributions to knowledge, speculative and historical. Not associated with any school or group, not the organ of any association or institution, it is interested in persistent, articulate inquiries into any questions, regardless of the writer's affiliations.

Address all correspondence to The Review of Metaphysics, 201 Linsly Hall, Yale University, New Haven, Conn.

Copyright 1948 by The Review of Metaphysics

Published quarterly by the Philosophy Reference Service, 201 Linsly Hall, Yale University, New Haven, Connecticut. Entered as second class matter at Lancaster, Pennsylvania, under the Act of March 3, 1879. Printed in Canada.
Subscription price $4.00 yearly. Single copies $1.00

THE
REVIEW OF METAPHYSICS
A Philosophical Quarterly

VOLUME V, NO. 3 MARCH 1952 ISSUE NO. 19

A REALISTIC ANALYSIS OF POSSIBILITY

1. The common understanding of man takes as its proper object "all that is" — or what the philosopher will subsequently designate as "Being, in the nominative, or existential sense." This common understanding seeks to know, concerning myriad finite parts or aspects of "all that is," *what* any such part or aspect is, *why* or *how* it has come to be as it is, and simply *that* it is. Thus it may be said that we seek to know the essence, the causes, and the existence of various finite beings.

2. But even to the common understanding it soon becomes evident that such knowledge, pursued even to its ultimate perfection, is nevertheless inadequate to many of the modest demands which confront that understanding. For immediately upon the achievement of even slight knowledge of the essence, existence or causes of any finite thing there comes an awareness that this thing could have been other than as it is, could have been produced by other or different causes, could have failed to come into existence at all — is, in other words, radically contingent. Nor does this awareness seem merely a function of the partiality, the incompleteness and finitude of human experience; if it were, we could expect it to diminish directly in proportion to the increasing scope and depth of our experience; this it does not do, but rather grows and increases as experience grows, reaching at last such a state that many, under the spell of its conviction, are led to assert either that such an awareness is a necessary part or aspect of all experience or that its object must be a necessary, analyti-

cally discoverable part or aspect of all the objects of experience.[1] No such assertions are necessary here; it suffices to re-affirm our faith in, and faithfulness to, the data of experience; one of the most pervasive and fundamental of all such data, then, we may honestly declare to be the radical contingency of the finite objects of our awareness. The *most* pervasive is existence.

3. This contingency has many facets. The three noted in the preceding paragraph can be designated accidental, causal, and substantial contingencies, respectively, applied, in this case, to a presently existing, determinate being. Without leaving the realm of "that which now is," one is easily able to discern some applications of contingency to the temporal dimensions of past and future; what now is, can remain substantially the same, while undergoing greater or lesser accidental modifications, or it may perhaps pass out of existence altogether. What now is, was, before becoming actual, able to be, able to become what it now is; it was producible; its causes were capable of producing it. Through awareness of such aspects as these, understanding is led inexorably to quite another *realm* of awareness — to a consideration of that which is not. The notion of that which is not, understandably troublesome to common understanding, nevertheless takes its proper place in our awareness; it is but a short step from the realization that some finite being now in existence could have been, may soon be, sometime was, *not* in existence, to the awareness that other beings not now in existence may yet be, could have been, perhaps sometime were. Thus the conceptions of non-existence and non-being begin to take shape in the understanding and to assume their proper places as correlatives to the conceptions of being and existence. And as they do, there arises with them their intermediate and inextricably inter-woven conceptions — possible existence, possible being.

4. Thus the understanding finds itself early in possession of the idea of possibility, vague and obscure as this idea may at first be. This very vagueness, which makes our possession of the idea precarious, has persuaded many to abandon it

---

[1] Thus some would argue that we would be simply incapable of experiencing a non-contingent object or event.

altogether. It would seem better that we seek out the reasons for the vagueness, and endeavor to secure our possession. These reasons are discoverable, residing, as they do, in the intermediate status of the idea's referent. *What* any finite thing is, and *that* it is, with respect to and insofar as it is, and *is* what it is, may properly and directly be apprehended by our intellects and sensibilities. So also may we apprehend what any finite thing is not, or even that it is not, insofar as it fails to be, either in a certain way or in any way. But *possibility* or the possible being of any finite thing, is in neither of these relatively clear-out situations. For the possible being of anything in any sense, must always be in relation to what that thing is not, in the same sense. And the possible non-being of anything must always be (and be conceived) in relation to what that thing is. Small wonder then that the idea of possibility has proved vague and difficult of apprehension, for it involves always in itself the two most radically diverse notions available to the human intellect, being and non-being. Indeed, we would seem justified in abandoning the idea for just these reasons were there not other reasons, even more compelling, which require us to retain it, to clarify its obscurities where we can, and to resign ourselves temporarily where we can not yet clearly apprehend. These reasons may be called *empirical*, *systematic*, and *composite*.

5. (a) The first has been suggested above in the course of describing how the idea of possibility arises in our consciousness; it was there asserted, and may now be re-affirmed, that contingency is an aspect of every object of our immediate experience, and that we are aware of an object's contingency as truly as we are aware of its nature, its existence, its causes. If one were to disagree on this point, there is little reason to hope that the disagreement could be easily settled by any appeal to more certain or general principles. Differences among empiricists as to the contents of experience are perhaps as radical as philosophic differences can be.

(b) The second, or systematic, reason for retaining the idea of possibility is this: Having arrived at the notions of being and non-being (and I would urge that every philosophic quest *must* eventually reach these conceptions or fail in its

purpose) we have then only three general alternatives for our further efforts at explanation and understanding; first, to hold to both of these notions, but offer no adequate account of their inter-relation or of the transition of any finite thing from one state to the other; second, to hold to one only of the two, reject the other, and attempt to subsume all finite things under the one embraced; third, to hold to both and attempt the account of their inter-relation and of the transition of finite things. The first two of these alternatives require no idea of possible being, but they also fail to accomplish that goal of the explanation of human experience and its objects which intrinsically and inherently attaches to the philosophic enterprise. The third alternative does offer such an explanation, and it requires, in one form or another, the idea of possible being.

(c) A third reason for retaining the idea of possibility is both empirical and systematic, but it is less empirically immediate than the first, and less systematically obvious than the second. It arises from our awareness of change in the world of experienced objects and is the most adequate, if not eventually the only satisfactory way of accounting for and explaining the changes which we experience. (To say that we experience change is much more than to say that we experience an object at one time in a state of being, in some respect, and at another (earlier or later) time in a state of non-being in that same respect; if this were not so, there would be nothing in this "third" reason which was not already in the second, other than the specific or individual application of the general relation of being and non-being. But to say that we experience change itself is to say that we are directly aware not only of the terminals of a process, or of various points or stages in the process, but of the very process itself. And such an awareness presses us very hard indeed for an explanation.) Before setting forth the explanation that is afforded by the realistic conception of possible being, it may be instructive to consider the shortcomings and failures of the first two of the systematic alternatives referred to in the immediately preceding paragraph.

(i) The first of these alternatives was that of retaining both conceptions, being and non-being, but offering no mediating or transitional concept. But since change always involves both the being and non-being either of that which changes, or of that aspect of a thing in which change may be said to occur, it is evident that any explanation of change must employ *some* mediating or transitional concept. In substantial change, for example, either some X, which at one time was not, at a subsequent time comes to be, or some Y, which at one time was, at a subsequent time ceases to be. When we witness such a change, we may experience not only the terminals of the process but the process itself, as occurring at a given time. Any explanation of the change must be an explanation of the process and not merely of the terminals, and must include a conception of the nature and meaning of the process. But this will necessarily be a transitional or mediating conception, having neither simple being nor simple non-being as its object. Hence the failure to achieve such a conception is inseparable from the failure to explain substantial change. The failure to explain formal change is similarly demonstrable.

(ii) The second systematic alternative noted above was that of retaining one of the two notions, i.e., being and non-being, and rejecting the other for various reasons. This alternative obviously has two radically distinct branches, depending on which notion is retained, which rejected.

(*a*) Consider first those who cling to the notion of being, rejecting non-being, usually, as self-contradictory or meaningless. What must these offer when asked for an explanation of change? If true to their principles they will simply reject change as illusory and unreal, as a notion characterized and condemned by the same self-discrepancies which made the notion of non-being untenable. From Parmenides to Bradley the long line of metaphysical monists stands almost unbroken in the condemnation of change as, in itself, unreal, false, illusion or appearance only. This course, I admit, is preferable to the preceding one: for to explain something away is not quite so bad as to fail to explain it in any way. But still this is no more than a temporary expedient; if change *is* unreal, an appearance only, then we should be told enough about the

Real to enable us to understand how it happens to manifest itself in such illusory ways. The responsibility of discovering and imparting this knowledge is in fact admitted by the more conscientious philosophers of this Eleatic persuasion, and many promise directly to discharge this obligation. To my knowledge, however, the promise has not yet been kept, and we still await a proper understanding and accounting of this "illusion" of change from those who would reject non-being.

(*b*) The second branch of this second systematic alternative comprises those who would reject the notion of being as unattainable or incomprehensible, if not in fact meaningless, and hold instead to the notion of non-being as their highest category of explanation. But since non-being is an unpopular conception at best, we can expect difficulty in identifying its proponents; very few Western philosophers have evidenced any willingness to dedicate themselves to, or even associate themselves with that which is not. Nevertheless, the speculations of many have led inexorably to just such an association. But immediately it may be urged that such champions of non-being should not be accused of failing to account for change, since this was the one thing they did embrace and explain. To which I reply that he who would explain *only* the changing must inevitably fail to explain even that, just as surely as he who would explain only the unchanging. And surely this must be evident when we reconsider that it is not merely change and the changing which is here claimed to be focal, but rather non-being itself; and surely non-being alone and by itself is insufficient as a category of explanation, however little we would attempt to explain.

6. The third systematic alternative mentioned above (in paragraph 5 (b)) was that of holding fast to the notions both of being and non-being, and of pressing the search, however arduous and difficult, for an intermediate conception capable of serving both as mediator and unifier. This conception is that of possible being, which can now be briefly characterized or described against the background of the various inadequacies ascribed to those theories which reject it. First, it may be reiterated that possibility generally involves both being and non-being: one as a base or internal referent, the other as

goal or external referent. The possible being of any entity has as its base or internal referent the actual non-being of that entity, and as its goal or external referent the actual being of the entity. The possible non-being of any entity has as its base the actual being of the entity, and as its goal the actual non-being of the entity. Thus every possibility has two proper terminals, one antecedent to it and one subsequent to it, in *whatever* order of causality or priority it may exist. It is partially identifiable with both of these terminals, yet wholly identical with neither. It is partially identifiable with its antecedent terminal in that they both are, and are now, both in the same finite existent, but each in the sense appropriate to itself; and yet it is not identical with its antecedent for it is *its* (i.e., its antecedent's) essential opposite, or negate, which if actualized will require the destruction or negation of that antecedent. On the other end, it is partially identifiable with its subsequent terminal in that their essence is one and the same: *what* it now is, in essence, is *what* that terminal will subsequently be; and yet it is obviously not identical with that subsequent terminal altogether, since it now is, while that terminal is not yet. In sum, a possibility is existentially identical with its antecedent terminal, as above defined, and essentially diverse from it, while it is essentially identical with its subsequent terminal while being existentially diverse from that.

7. It will be evident that the preceding brief statement is meant to be a description of possibility absolutely general and unqualified. When qualified (i.e., further determined) by various pertinent modifiers, possibility will be expected to take on new properties and meanings; and the problems of the natures and meanings of, for example, metaphysical possibility, logical possibility, and physical possibility, are such as to require our immediate attention. But a task of perhaps even greater immediacy is that of examining carefully some of the more important implications of this account of the nature of general or unqualified possibility. Some of these may well be such as to cause some uneasiness when first clearly exhibited and affirmed.

(a) We must first ask, "On the basis of this account of possibility, *what is* possible, and what is not?" If possibility

has been correctly defined as that which is existentially identical with its antecedent but essentially diverse from it, and essentially identical with but existentially diverse from its consequent, then how great is the area to which such a description can be truly applied?

It is then evident that the answer to the question "What is possible?" must always be given in terms of some designated antecedent and consequent, and that, lacking any such, no answer should be attempted. A completely general or formal answer may then be offered (it is not so formal as to be devoid of content altogether, but it has only what I understand to be the absolute minimum of such content): Given any antecedent, *its consequent* is possible. Or, what amounts to the same thing, given any sequence where that which is prior in the sequence can be designated, then that which is posterior in the sequence is possible. Given, for example, a logical sequence with designated premises, its conclusion is possible. Given a destructive sequence, the non-existence of the entity being destroyed is possible. Given a constructive sequence, the existence of the entity being constructed is possible. (It is understood in these latter examples that the existence of an entity being destroyed, and the non-existence of an entity being constructed, are respectively the antecedents or prior elements of the sequences.) Given the entire state or contents of the finite universe at a given moment in time, or under any given aspect, and the *negation* or *other* of that state or contents is possible. Given simply the non-being of any finite entity, the being of that same entity is possible; given simply the being of any such, its non-being is possible. Given "nothing" as an antecedent, "everything" is possible; and the converse of this is equally true.[2]

(b) But surely it would now seem that this theory of general, or pure, possibility has precipitated us into the worst kind of difficulty. For within say, "being," or "what is," surely there is at least one element or aspect that *necessarily* is as it is, and if our principles are to be followed we must say that the non-being of any being whatever is possible; but to

---

[2] Here of course, "nothing is possible" must mean "the non-being of everything is possible," and not "there is not anything possible."

assert that the non-being of a necessary being is possible seems blatantly to affirm a logical contradiction. A co-ordinate difficulty which may appear, at first, even more monstrous may be seen: much of non-being, of that which is not, is in addition self-contradictory; it *is* not, and it *can not be;* to assert its possibility would then seem to rob the term of all meaning; and yet we seem committed to this assertion by our principles. The best solution to all such difficulties, I believe, is frankly to avow at this point the thesis that "pure possibility" or "mere possbility," as such and in itself, transcends *all* lower, more specific orders of possibility, and is thus not bound by the laws and restrictions which pertain to those lower orders. Nor should this avowal seem too surprising; it is surely a commonplace that there are logical possibilities which are not physically possible., which is but another way of saying that the realm or domain of logical possibility transcends and exceeds that of physical possibility. It will then be part of the aim of this essay to show that the realm of metaphysical possibility similarly transcends that of logical possibility, and is itself in turn transcended by the realm of pure possibility, to which our attention has thus far been confined.

8. To see how the domain of mere possibility, or possibility unqualified, transcends and exceeds that of metaphysical possibility, which lies next below it in the hierarchy suggested above, we may investigate a simple but critical case. The being of any contingent entity is metaphysically possible. So is the non-being of the same entity. Thus the conjunction of these two possibilities is a metaphysical fact. But, since nothing can both be and not be, in actuality, the possibility of the conjunction is *not* a fact, at least not of metaphysics. Yet surely it is something; and upon sufficient reflection I am sure that we will see just what it is: namely, a mere possibility. To say this now more clearly, let X be any such entity under consideration. Speaking formally, X is metaphysically possible, and non-X is metaphysically possible. These two possibilities may be conjointly asserted as "possibilities": "'possible X' and 'possible non-X'" is true. But "possible 'X and non-X'" is, metaphysically, false; that is, "X and non-X" is metaphysically impossible. But "X and non-X" is not simply nothing at all (nor is it simply a being of reason); instead of being (or

saying) nothing, it tries to be (and say) too much, and so fails permanently as a metaphysical possibility. But, not being nothing, it must be something, must have some status. Its proper status, I submit, is then that of being a pure possibility. That it fulfills the requirements set forth above will be evident. It has an antecedent, the non-being of "X and non-X," with which it is existentially identical and from which it is essentially diverse; [3] and it has a consequent, the being of "X and non-X," from which it is existentially diverse and with which it is essentially identical. That its antecedent must always be, and that its consequent can never be, we may confidently assert; but our assertion rests on metaphysical grounds, and our confidence can arise only from our awareness of certain metaphysical principles. The antecedent is metaphysically necessary, and the consequent metaphysically impossible, and this means that this mere possibility fails to be a metaphysical possibility. In doing so, it has shown us how the domain of mere possibility extends beyond the limits of metaphysical possibility, admitting to membership much that is excluded from the latter. Through the instance, we can approach the general definition or delineation of the two domains. Pure possibilities whose consequents, we may now say, would violate no law or principle of metaphysics in becoming actual, are then also metaphysical possibilities. If the consequent of a pure possibility would, as actual, be inconsistent with any true metaphysical principle, then that possibility is *only* a pure possibility, and nothing more. All metaphysical possibilities, needless to say, satisfy the definition of pure possibility, as that has been stated.

9. Being is one, is necessary, and is self-consistent.[4] There are other principles, and other ways of expressing these three.

---

[3] The non-being of "X and non-X" *is;* in it, and in precisely the same sense in which it *is,* the pure possibility of "X and non-X" *is;* but *what* that possibility has as its *essence* is of course the essential negate of its antecedent, namely, the being of "X and non-X." This last *is not,* in fact, is metaphysically impossible. Yet it remains for all that a pure possibility.

[4] These must be understood as predicates of infinite Being, not of finite or existential being, which in its finitude, is plural, contingent, and capable of inconsistency. All of these imperfections are overcome (or better, "made good") in infinite Being.

But these three, in my thinking, suffice for the determination of metaphysical possibility. Any pure possibility which would also be a metaphysical possibility must be such that its consequent, as actual, would be in full accord with the unity, the necessity, and the self-consistency of Being. Failing of harmony anywhere here, it must fall back into the realm of those pure possibilities which are metaphysical impossibilities. Thus it was that the example of pure possibility considered in the preceding paragraph, "X and non-X," was rejected as a metaphysical possibility, since its consequent, if actual, would violate the self-consistency of Being; so it would be with any pure possibility whose (actual) consequent would in any way require Being's plurality, contingency or inconsistency.

(a) It will now have become evident that, while in the definition of pure possibility the antecedent and consequent played co-ordinate roles, in the definition of metaphysical possibility major attention must be given to the consequent. It is in the consequent as actual that the nature of any possibility is most clearly and positively exhibited, and it is here that we must look to discover whether any proposed possibility can satisfy the demands of Being as these are expressed in the principles of metaphysics. Speaking generally, we may say that the nature of the antecedent as actual does not matter in itself. There will of course be cases in which, from an understanding of the nature of the antecedent of a given possibility we will be able to infer the nature of the consequent, and thus pronounce the possibility metaphysically acceptable, or not so; but still in itself, the nature of the antecedent is not important. The implications of this discovery are many and interesting; the one that bears most closely upon our present problem is, I think, that finite being itself (seem in the light of this special attention to consequents) is the actualization or the consequent of a possibility whose antecedent, even if taken as actual, would not in itself be important, for the reason that it is nothing. This is not to say that finite being is the actualization of a possibility which had no antecedent; it has an antecedent, and that antecedent is nothing, or (finite) non-being.

10. Logic is a second-intentional science, having as its proper subject matter those beings of reason (*entia rationis*) by means of which we have our knowledge of the real beings in the world of nature. It is thus clear that the beings, or that part or area of Being, which logic takes as its proper subject-matter, can best be described as the result of a determination or specification of Being itself. Logic is then a more concrete science than metaphysics. This must be clearly affirmed, for otherwise it would seem anomalous that any metaphysical possibilities should turn out to be logical impossibilities, as in fact they do. Logic is a more concrete science than metaphysics in that it deals not with Being as a whole and in itself, as does metaphysics, but rather with "Being, as known." But since every "being, as known" is itself a being, and since every instance of knowledge is itself a being, these are surely, in some respect, part of the subject-matter of metaphysics, and there can be no object of logical enquiry which is not also, in some respect, an object of metaphysical significance. Now the principle of non-contradiction, which was used above as a metaphysical principle, which it primarily is, may also be expressed as a principle of logic. So expressed it asserts that our knowledge of being (or, being as known by us) must contain no contradictions, *if it is to be true knowledge*. Any knowledge, so-called, which can be shown to contain such contradiction, will then be declared not only false but impossible, and this is precisely what we mean to refer to when we speak of logical impossibility. But now we may ask more precisely what the metaphysical status of such a logical impossibility may be. And the answer must be that while such a contradiction, thought or judged by us, is indeed a logical impossibility, in that it can not possibly be true of being as adequately known, it is on the other hand a metaphysical fact, insofar as we regard the claimed instance of knowledge as itself a being. Nor can this conclusion be avoided by now deciding that such a contradiction is not to be called knowledge after all, for, whatever we call it, we can not escape the fact that it in some sense exists, and is thus in some sense a being to be enquired after by metaphysics. We all can, and most of us at some time do, think contradictorily; that such thoughts

can not possibly be true about reality is certain; that they are at the same time in their own right a part (albeit only an intentional part) of being seems to me equally beyond question.

(a) There is another way of approaching this which may contribute alternative or additive clarity to the matter. The logical principle of non-contradiction, we may say, is categorical for logic itself, but within the larger context of metaphysics it (*i.e.*, the *logical* principle) is only hypothetical. Categorically it is a law *of* logic that says we must not think a contradiction; and so long as we stay within the confines of logic it is useless and futile to ask *why* we must not; the worst that can be threatened is that our thinking, once it has admitted one contradiction, will be subject to many more; but this is not to tell us what is wrong with contradictions in the first place. For the answer to this question we must turn to metaphysics, which, cognizant both of Being in itself and of Being as known, can then tell us that *if* we would have the latter adequate to (*i.e.*, true about) the former, we must permit within the latter no (logical) contradictions, since within the former there are no (metaphysical) contradictions. But this is not to say that, metaphysically, we can not think a contradiction, but only that if we do our thought will not be adequate. When we do think such, then, logic must categorically reject our thought without qualification, for it is simply a logical impossibility. Metaphysics, on the other hand, while seconding logic's rejection in its own domain, must admit our thought to the metaphysical domain, recognizing that the thought itself is a fact, a being, no matter how far it fails of logical adequacy.

11. Every logical possibility is then also a metaphysical possibility; but any metaphysical possibility whose actuality or consequent would be some being of reason which could not possibly be adequate to any real being fails to be logically possible. And from this delineation we may extract an appropriate definition of logical possibility: it is that further specification or determination of metaphysical possibility which requires that being, as known, be represented as adequate to, or true of, being itself. The ordinary way of saying this has usually been to define the logically possible as anything

that can be thought without contradiction; but I think it evident in the light of the preceding discussion that such a definition is an accidental rather than a generic one. For if we ask the question, "Why is only this much logically possible?" or again, "What is the status of that which *can not* be thought without contradiction?" no very clear answer can be made on the basis of this usual definition. The first question is likely to be answered only by haughty silence; the second, by the statement that what can not be thought without contradiction is logically impossible, and this is merely to reiterate the definition, whereas we had enquired after the metaphysical status of a thought contradiction. On the basis of the definition I have suggested, however, it seems possible to give satisfactory answers to both of these questions. To the first, we may reply that since Being is, among other things, one and self-consistent, so also must our knowledge be free of all contradiction or inconsistency *if* it is to succeed in its aim; logical possibility is simply the name we give to this freedom of knowledge from inconsistency; logical impossibility is correspondingly attributed to knowledge or thinking that is inconsistent with itself, and it is quite properly regarded as something scrupulously to be avoided or rejected. But we should err seriously if we thought that the reason or ground for such rejection could be discovered within the domain of mere logic; the proper understanding of the ground requires that we look to Being itself, for it is *its* self-consistency that warrants and makes significant the rejection of the logically impossible.

12. It is confidently maintained by most philosophers that the realm of logical possibility exceeds or transcends that of real possibility, that not all logical possibilities are really possible. Logical possibility is thus held to be a necessary, but not sufficient, condition with respect to real possibility. This position seems correct enough; but if the discussion of paragraphs 8 through 10, above, is correct, it must be clear that metaphysical possibility, as there defined and delineated, can not be what we mean when we speak of real possibility in this present usage. Following the analogy of the preceding differentiations we can clearly see that any domain whose

range of possibility is less than that of logical possibility must be more restricted, more concrete, than the domain of logic. That the domain of metaphysics is not thus narrower but is in fact broader, more inclusive, than that of logic has been argued above. But then what is it that may be called "reality" within which we may expect to discover the nature and attributes of what has been designated "real possibility"? Although more restricted or confined than logical possibility, real possibility would yet seem to have much in common with metaphysical possibility, as this last has been defined; much more in common, indeed, than it would be thought to have with logical possibility, although in point of scope or comprehensiveness it appears at first to be simply a further restriction within the realm of logical possibility. The answers to these problems and several others will, I believe, be forthcoming if we find it possible to accept the following characterization of "reality."

(a) Let us understand the adjective "real" to be equivalent in meaning to the phrase "individually enacted within the space-time matrix of our universe." "Reality," then, as a concrete substantive, will mean "the sum of all entities or beings which have been, are being, or will be, so enacted." As an abstract substantive, "reality" will designate those aspects or elements of the character of any entity which bear upon or represent the manner and degree of enactment of the given entity. Thus understood, the relations of the real to other aspects of being may be subsequently clarified. *Real being* can now be seen to be one specific mode of Being in general; the other mode is *rational being*, whose nature has been briefly delineated in the sections above dealing with logical possibility. Together these two modes comprise the totality of Being in general, insofar as we are presently able to apprehend this.

(b) Real possibility, then, if the above paragraph be acceptable, is the ability to be individually enacted within the space-time matrix of our universe. It may be thus regarded in general, or it may be divided into its temporal aspects, since time is in fact an essential ingredient in its definition and nature. Thus divided, it gives us the modes of past, present and future real possibility, in recognition of which we may meaning-

fully and truly think of what was, what now is, or what will be really possible. These temporal modes do not pertain to the realm of rational being, nor therefore, to the domain of logical possibility. Neither do they pertain to the realm of Being in general, since Being is, and is regarded as being, prior to and independent of temporal specification; nor, therefore, do they pertain to the domain of metaphysical possibility. This is to say that nothing comes to be, within time, either metaphysically or logically possible which was not so at every previous time; nor does any metaphysical or logical possibility cease to be so in time. Both of these conditions are eternal in the literal sense, which is to say, timeless. Real possibilities, on the other hand, can and do come to be, and cease to be, with the passage of time. What was really possible at some time past need not be so now nor ever again in the future. What has never yet been really possible, nor is not now, may yet within the temporal future become so. Any such temporal combinations are admissible, including the two extremities wherein we may consider, on the one hand, entities which always have been, are, and always will be, really possible; and, on the other hand, entities which never have been, are not now, and in fact never will be, really possible; these latter may, for all that, yet be in their own way real possibilities, while the former are, for all their endurance, no more than that.

(i) These two seeming paradoxes are easily explained when we realize that "real possibility" is being used here in the two distinct senses which it properly has. The first sense, in which it is correct to say that entities may come or cease to be really possible, is that in which the real possibility of one entity may be seen to be dependent upon the (real) actuality of one or more other entities; since these actualities, in the nature of our space-time matrix, are themselves subject to flux or transience, so also are the real possibilities which are dependent upon them. The second sense of "real possibility" is one that pertains only to an entity itself, apart from and independent of all other entities; it is in this sense that we can speak of something as being, in and of its own nature, really possible, without regard to other circumstances; it is only in this sense that the second extremity mentioned above can be accepted without contradiction.

But in this second sense, it may well be argued, entities can *not* properly be said to change in time with respect to their real possibility. This must be admitted to be entirely correct; indeed, if it were not so, if there were not a sense of real possibility which was independent of time, then there could not be any reasonable accounting for the sense in which it can change and fluctuate *with* time. For consider the question of how we should describe or characterize an entity, not really possible at time T_1 but really possible at a later time T_2, if our description is to take place within or have exclusive reference to time T_1. We surely would not wish to limit our statement about the entity to the negative information that it was not really possible at the time of description; nor would it be true to say that it *was* really possible, in the univocal first sense noted above. Would we not then say that the entity was, at time T_1, *able to be* really possible, since we know that at time T_2 it will have become so? But to be able to be, or become really possible, to be such that it *can be* really possible, is this not precisely the meaning of the second sense of real possibility above noted? This is what it means for an entity to be *essentially* really possible, to be really possible in itself, without concern for the present actuality of other contingent entities upon which the first entity's real possibility, in the first sense, must be admitted to depend.

The same characterization would apply if the given entity had been such that it had been really possible at T_1, but were now no longer so at T_2; describing it at T_2, or with exclusive reference to T_2, we would say not merely that it was not really possible at T_2, but also that it was able to be really possible, or was in essence really possible; for how else could we do justice to its nature, in view of the fact that it had been really possible at T_1? There are, then, these two senses or meanings of "real possibility," one requiring that things be subject to temporal variation or modes, the other not. It may be urged that we seek a more distinct and discriminating terminology, but I believe that, within the limits of the present essay at least, it will suffice to deal with them as I have. If desirable for other and further purposes, it would perhaps be well to attempt to signify the relation between these two meanings or senses by referring to the former as "real possibility" or "actual

real possibility," and to the latter as "possible real possibility"; the disadvantages of this terminology for our present purposes are, however, obvious.

(c) We might well have missed the second or non-temporal meaning of "real possibility" altogether, had it not been for the need of explaining the more obvious, temporal meaning. In accounting for the temporal flux of real possibility in the more obvious sense, we saw that whatever became or ceased to be really possible in this sense, had always been and would always be really possible in the subtler and less obvious sense. But now that we do have this distinction before us, it may well prove helpful in the attempt to understand just what it is that can be or become really possible, in either of these two specific senses or in general. In the definition of "reality" above (par. 12 (a)) "individual enactment in the space-time matrix" was the definiens. "Real possibility" was then defined as "the ability to be individually enacted in the space-time matrix." The result of any such enactment is then of course a real being or individual. But what is it that is so enacted ? What is it, in other words, that *is* really possible ? In one sense, and for many purposes, it is quite true and adequate to answer that it is the *real being* or *individual* which is really possible. But this answer will not satisfy our present needs. We must discover, as in each of the several preceding enquiries, not simply what a possibility is subsequent to its enactment or realization, but what it is prior to this. What it is that is really possible, in this sense, then, must surely be precisely an essence, or nature, or Form. It must be an individual essence, etc., since it is the real possibility of an individual being. It is precisely that essence which, when given existence, will *be* that real individual whose real possibility it is now said to be. Real possibilities, then, are individual essences or natures, not presently (*i.e., qua* real possibilities) given existence in or by a spatio-temporal enactment. It is worth our time to convert this identity to the statement that individual essences are real possibilities, the real possibilities of those real beings whose essences they are able to be, and will be, if and when enacted. But this is the general statement. Of the two specific senses of real possibility, and, hence, of individual essence, we may say this: considered in abstraction

from the dependence of a given individual, for its spatio-temporal enactment, upon other real individuals, we have the individual essence or real possibility in the subtler, non-temporal sense; considered together with this intimate and complex system of causal dependency, we have the individual essence or real possibility in the more obvious temporal sense. What a real possibility is, what it is that is really possible, is the same in either case: an individual essence.

13. A final task confronts us in the present inquiry: the differentiation of real possibility from other types of possibility to which it is related or with which it might be confused. For this purpose it will be necessary to think back upon the subject-matters of logic and metaphysics, and upon the natures of the logical and metaphysical possibility which were seen to follow from them. Real being, as it has been just characterized, is individually enacted being. Rational being, the subject-matter of logic, was argued to consist of being-as-known, which among its several distinguishing characteristics exhibits the outstanding and unique feature of universality. Aside then from all other considerations of their respective positive contents, we may always with safety distinguish real being from rational being, and, consequently, real possibility from logical possibility, on this basis of their respective individuality and universality. Real possibilities are individuals; logical possibilities are universals.[5] Taken together, real being and rational being comprise the known specifications or determinations of being itself; then just as being *qua being* is the subject-matter of metaphysics, so is *the ability to be*, simply and without qualification other than unity, consistency and necessity which are the discoverable characteristics of "being *qua* being," what we found to be meant by metaphysical possibility. Real possibility will then stand to metaphysical possibility just as real being stands to being itself, as one of its determinations or specifications, as one *kind* or mode of metaphysical possibility, in other words. Logical possibility is the other kind, as was argued in paragraphs 10 and 11. A real possibility will of course also be a metaphysical possibility — will in fact be so

[5] This is of course an accidental differentiation, and not a statement of essential comprehension or definition.

prior to its being a real possibility, although this priority is of course not to be construed as temporal.

(a) A final word may be offered to attempt the clarification of an almost traditional misunderstanding concerning the relation between real possibility and logical possibility. It has been asserted repeatedly and by respected sources that whatever is to be really possible must first be logically possible. The basis of this assertion seems usually to be one or the other of two beliefs about the relation of the rational and the real; both, I believe, are erroneous. One is the well-known identification or equation of these, given us by the Hegelian philosophy; the other is the belief in the priority of the rational over the real, with the priority of logical possibility over real possibility a natural consequence. I think it is obvious that the general position upon which the present essay is predicated repudiates any such identification or priority. Real being and rational being are not identical; nor is one prior to the other. They are both specific determinations of being itself, and it is this pure being which is prior to both of them. Consequently, the kind of possibility which is *prior* to real possibility is of course metaphysical possibility, and this latter is equally prior to logical possibility. Such uniformity or compatibility, then, as may be observable between real and logical possibilities, must be understood as being the consequence of their common original, of which they are different but analogically similar determinations. Even so, of course, this can only be the special compatibility of the universal with its singular. A real possibility, being an individual essence, will be an instance or singular of some universal essence which is a logical possibility; but it will be so only because both are derived by specific determination from a being which is prior to both, and which is one, consistent and necessary; the consistency of the realm of real possibility, then, and of that of logical possibility, and of the two realms with each other, must all be understood as the consequence of the higher consistency of that realm of pure and unspecified metaphysical possibility of which they are determinations.

RICHARD L. BARBER

Tulane University.

The Review of Metaphysics, Vol. V, No. 3, March 1952.

CONTEMPORARY SCIENCE AND FREEDOM

I

THE RELIGION OF FREEDOM

The cultural atmosphere that prevailed in Europe a century ago has been suitably defined by Croce as "the religion of freedom." A buoyant confidence in the boundless power of freedom, in its capacity to triumph in the face of the most adverse circumstances, preserving and guaranteeing its essence by means of the dialectics of events and thus overcoming every obstacle, was in fact the dominant trait of European thought a century ago. An over-confident, hyperbolic optimism was the basis of this attitude: everyone believed that freedom was the most firmly established and definite *fact* of history, and that all we had to do was to follow passively the course of events, which, though apparently capricious, were in reality significant: and that in the long run freedom would necessarily triumph, albeit arising from its own ashes.

This attitude was closely connected with the situation of science and philosophy, both of which, a century ago, spoke the language of necessity. Science believed that the facts of nature formed an endless chain of cause and effect, each link of which was determined by the preceding one and in turn infallibly determined the following one, so as to make a rigid system from which no part or element of reality could escape. Science believed that causality in its most rigorous and deterministic sense was the only valid principle that explained natural phenomena; and it measured the success of its work to the extent that it discovered this necessary causal connection. On the other hand, the two great trends of philosophy, positivism and idealism, spoke a similar language: positivism extended causal determinism to the entire scope of reality, and idealism replaced it with a dialectical-rational determinism which was not less necessitating. It is true that these two trends were engaged in bitter controversy, the one speaking of nature or matter, the

other of spirit or reason: the one placing mankind, the other infinite Reason, as the ultimate aim and climax of the development of reality. But in spite of their polemics and controversies, the *horizon* in which both these trends moved was the same: that of *necessity*. Everything that happens, in nature or in history, *must* necessarily happen. Every phenomenon, every event, every characteristic or determination of reality is exactly what it should be by virtue of the infinite principle that governs reality itself. This infinite principle was interpreted by positivism in terms of mechanical causality, and by idealism in terms of dialectic rationality; but this diversity of interpretation made no difference on the fundamental point, which was the necessity of reality as such. This necessity meant that any fact or happening, in nature or in history, was fully justified by the mere fact that it *was* a fact or a happening: at that particular point of the uninterrupted chain of facts (or of the rational system of reality), it was the only thing that could and should have happened. Accordingly, each fact or event was an improvement and a progress over the preceding ones, and in turn anticipated a further progress. Progress itself seemed necessary and infallible; and those events which seemingly belied it were actually a promise or a preparation for a greater future progress.

One may wonder how this interpretation of reality based on rigorous necessity can agree with that religion of freedom which was characteristic of the times. Actually, the two things not only agree but depend on each other. One can believe that freedom will be guaranteed at all costs and in all cases only if one believes that history itself is governed by an infinite principle that guarantees its successful development. Only if one believes that necessity prevails in history and infallibly directs events to their happy end, can one cherish an optimistic trust in the ultimate triumph of freedom, and pleasantly relax in the expectation of the event. The attitude at the root of the religion of freedom can be best defined by saying that *necessity maintains and guarantees freedom*.

II

Freedom as a problem

If we compare this situation with that of our times, it is obvious that many things have changed. Not that we cherish freedom less; on the contrary, even doctrines and systems that practically deny or abolish it like to adorn themselves with some more or less captious interpretation of its name. What we have lost is the "religion" of freedom, in the sense in which this word was used to define the nineteenth century: that buoyant confidence in the boundless power of freedom, in its capacity to preserve and renew itself by virtue of an infallible necessity that is superior to events. What we have also lost is the dogmatic belief that freedom possesses the sovereign power eventually to eliminate or to heal every evil or ill. We have learned that freedom is difficult and dangerous, that it can be a source of evil as well as of good. The practice of freedom involves the continual risk of its being denied. Its rehabilitation is neither automatic nor inevitable and does not come about according to an internal law that governs events; it demands hard work and effort and, sometimes, blood and tears. We have also learned that the very notion of freedom may be distorted and mutilated to the point of meaning the contrary of what it should mean. This notion has become extremely problematical, and the problems that it implies are numerous and complex. Certainly, what we lack, and what we especially need, is an *understanding* of freedom: not a purely formal or general notion, but an effective understanding that can really help to guide us in the choice of our fundamental attitudes as well as in the minor choices of our daily life. Freedom gives rise to uncertainty, doubt, and denial, to contrasts and obstacles; the only counterpoise to these would seem to be a concrete, working, effective understanding of freedom itself.

But — and this is the fundamental point — this understanding of freedom must be in turn the child of freedom. We cannot understand freedom and live by it, unless we *freely* dispose our thoughts and deeds, our reason and feelings, to penetrate and grasp its nature. In other words, *only freedom*

can acknowledge, establish, and preserve freedom. And this is the substantial difference between our attitude and that of our forebears of a century ago. For them, freedom was established and preserved by a necessity (of history, of nature, or of both). For us, freedom can be established and preserved only by freedom itself. This means, in the first place, that freedom cannot be the automatic product of an impersonal or suprapersonal force that presides over history, but can be only the result of the free efforts of human beings. In the second place, it means that in no way can freedom ever be established, maintained, or guaranteed by its contrary. In the field of education, for instance, the freedom of the pupil cannot be promoted by the use of intransigent authority on the part of the educator. And in the political field, the freedom of a people will never be guaranteed by a dictatorship or by any method of government that violates or jeopardizes freedom itself.

III

Contemporary Mathematics and Freedom

Freedom, then, can only be the result of freedom. It demands an effective comprehension of its own fundamental nature, as well as of the concrete historical modes in which it is actually manifest. Is this comprehension possible? That is the question which I intend to discuss in this paper. Obviously, if science and philosophy in our century had remained closed within the horizon that circumscribed them a century ago, there could be no solution to this problem. If science and philosophy still spoke the language of necessity, if they still believed that in nature and in history — and therefore in man and around him — a necessitating order were the only conceivable one, there would be only two alternatives for us: either to renew our naïve and delusive trust in the "religion" of freedom; or to abandon the idea of freedom as an impossible dream, and to refuse to believe in it or to work for its achievement. Actually, this last alternative seems to appeal to us greatly nowadays, and there are many people who are radically skeptical concerning the future of freedom In a certain sense,

this skepticism is not entirely unjustified. Freedom *may* be lost, at any moment. But this *may* does not mean *must;* we must not confuse a possibility with a necessity. And if it doesn't mean *must,* then there is a margin in which our own free action can insert itself and work to preserve and guarantee freedom. What is this margin? And does it really exist?

If we consider the trends of contemporary science and philosophy, we may be able to give some sort of answer to these questions. We can begin by sketching a brief outline of the fundamental results of contemporary science. We must, of course, bear in mind and throw into relief those traits which especially show how contemporary science has parted ways with nineteenth-century science, proceeding in a course that is irreconcilable with it. If someone doubts the validity of these traits, or considers them reducible to the traits of nineteenth-century science, we will not stop to refute them. It must merely be understood that such a person will have to choose between the alternatives already mentioned: either to surrender blindly to the belief that necessity will generate freedom, or to despair of freedom itself. What we are interested in is seeing the perspectives concerning our problem that are disclosed by the characteristic traits of contemporary science.

Let us consider the field of mathematics. From this point of view, the most obvious trait is the disappearance of the concept of necessary truths. Propositions such as: "The sum of the internal angles of a triangle is equal to two right angles," have been considered for many centuries as the very prototype of necessary truths. Now we know that propositions such as this are valid only if one accepts certain other fundamental propositions, or postulates, from which they are deduced, and which, if varied, change the depending propositions. That particular proposition is valid only if one accepts Euclid's fifth axiom; if one doesn't, the internal angles of a triangle may be less or more than two right angles. Everything depends on the propositions that are chosen as the basis of the mathematical discourse. Are these propositions in turn obvious and necessary truths that it is impossible to deny? On the con-

trary, for present-day mathematicians they are merely conventional definitions concerning the use of certain terms. "Conventional" does not mean that these defining propositions are imposed on mathematics by their obviousness, but that they are *chosen*, and chosen exclusively in view of the construction and ordering of a mathematical discourse. And what is the criterion according to which they are chosen? The criterion of utility. Certain propositions are chosen, rather than others, as the foundation of a mathematical construction, because they lend themselves better to the coherent development of a mathematical discourse. In other words, mathematics does not follow the course of a preordained logical necessity; it chooses the presuppositions of its reasoning, and this choice is free. It is not, however, arbitrary, blind, or irrational. The presuppositions that are chosen must be capable of giving place to a mathematical discourse; and if, at a certain point, the discourse is stopped or rendered impossible by them, the mathematician has no difficulty in changing the presuppositions and choosing others that are more apt. Thus we see that the presupposition is valid only if and inasmuch as the initial choice of it can be continually renewed and maintained; whereas, if the mathematical research arrives at a point in which that choice cannot be renewed and maintained, the presupposition must be abandoned and a new choice made.

All this goes to show that at the basis of mathematics, the most necessary and rigorous of sciences, there is not an act of necessity, but of freedom: a choice. Mathematics freely builds the rationality of its constructions; and this rationality is not imposed upon it from without, but is the result of its choice. The rationality of a mathematical discourse consists precisely in the possibility that the choice of the initial propositions which define its terms and their modes of use, can be continually renewed. A useful, opportune, valid choice of the antecedents of a mathematical discourse is merely a choice that can be repeated *ad infinitum* within the scope of this discourse. In other words, the criterion of rationality which present-day mathematics seems to suggest does not consist in a series or system of principles or of obvious propositions which must at all costs be acknowledged and safeguarded, but merely in

the *possibility* that the initial choice be maintained and repeated indefinitely. But possibility is freedom itself. And the core of mathematical rationality is thus freedom.

IV

Contemporary Physics and Freedom

In the field of physics, the characteristic trait of contemporary science is the abandonment of the concept of *necessary reality*. By necessary reality one means a reality the concept of which implies existence, and to which, therefore, one may attribute qualities and determinations that are not reached or proved by methods of control or ascertainment available to man. For physics of the nineteenth century, matter, power, and generally speaking all the so-called "natural phenomena," were necessary realities in this sense of the term. It considered itself entitled to attribute to the natural facts qualities and determinations that had not been derived from observation, and it pretended to give an exhaustive and complete description of them in their genesis and development, a description which went far beyond the results of ascertainable observation. The presupposition of this attitude of nineteenth-century science is the concept of reality as necessary, a reality that exists in its totality and constitutes a rigorous chain of necessitating determinations, so that it is sufficient to have observed one link of these determinations in order to accept the existence of all the others, even if they have not been derived from effective observation. The abandonment of this concept of necessary reality occurred at the hands of relativistic physics, and it is at the basis of new quantum mechanics. Einstein asserted the methodological canon that it is not possible to attribute to physical reality qualities or determinations that are not the result of observations or measurements that have effectively been taken. According to this canon, if one asserts, for instance, that two phenomena *a* and *b* are contemporary, it is necessary to indicate at the same time the method by which this contemporaneity may be observed. Once this method is indicated and thus the system of reference is established accord-

ing to which the observation will be taken, the contemporaneity becomes relative to this system; and it is impossible to acknowledge any privileged system of reference because its position would have to be established independently of the methods of measurement, and this would contradict the assumed canon. The restricted theory of relativity is thus a direct result of the methodological rule to admit only those determinations of physical reality that are the result of actual measurement. The same exigency led Einstein later on to formulate a theory of gravitation that disposes of mysterious forces acting at a distance and considers gravitational phenomena to be caused by a warp of space-time, constituted by measurable coefficients, the most important of which is mass. The general theory of relativity replaces the metaphysical explanation of gravitation in terms of forces and action at a distance, with a mere geometrical hypothesis about the nature of space-time — an hypothesis whose true physical significance consists merely in the possibilities of measurement that it affords. Physics thus acknowledges the essential trait of its procedure, which is not to give an exhaustive description of natural phenomena and their unchanging laws, but to maintain and guarantee the free and efficacious use of its own methods of observation and measure.

The development of atomic physics, and of quantum mechanics, has led physics to consider even more accurately its methods of calculating and measuring. This development has in fact shown that the observation of a subatomic phenomenon produces unforeseeable modifications in the observed phenomenon. The energy employed in an observation (for instance, light) cannot be reduced below a certain minimum quantity (the *quantum*), which is sufficient to modify the phenomenon. As a result of this, any observation aiming to determine the position of an atomic particle modifies its speed, and any determination of its speed modifies its position, thus making it impossible to determine at the same time the speed and position of a particle. If the speed is determined, the position remains undetermined, *i.e.*, it is impossible to foresee it precisely. This is the principle of indeterminacy advanced

by Heisenberg in 1927. The consequence of this principle is that one may formulate only probable predictions about the behavior of an atomic particle that has been submitted to observation; no prediction is certain.

The necessity of the laws of nature of which nineteenth-century physics spoke was defined by the possibility of unerring prediction. The astronomer Laplace, in a famous sentence that can be considered as the guiding line of physics for most of the nineteenth century, said that "if an intelligence, which for a given instant knew all the forces by which nature is governed and the respective situation of the beings that compose her, were vast enough to submit these data to calculation, this intelligence would embrace in the same formula the movements of the greatest bodies in the universe and those of the smallest atom; nothing would be uncertain, and the future as the past would be revealed before its eyes." Quantum physics has belied this ideal. Unerring prediction is not possible, not through an imperfection of the means of observation and calculation available to man, but precisely because these means unforeseeably influence the observed facts. The result is that present-day science does not pretend to give an image of phenomena, nor to describe exhaustively their total course. It speaks, for example, of waves and corpuscles, using these terms promiscuously with respect to the same atomic phenomena. And this, which would have been intolerably contradictory for physics in the past, does not disturb quantum physics because it uses these images only in order to introduce certain methods of measurement and calculation. The conclusion of these remarks is that contemporary physics does not consider an atomic particle as a *thing*, in the sense in which this word is understood in the macroscopic world. The course of macroscopic things may be described in its totality and therefore foreseen with certainty. Contemporary physics speaks of the *state* of an atomic complex, and this state is merely a mathematical determination, a function which, while summing up the results of the observations performed on an atomic complex in a given instant, allows us to calculate the probability of finding certain results when, in a future moment, another observation will be performed on the same system. The *state* has nothing to do

with a thing visible, tangible, or describable; it is only a mathematical determination expressing in an analytical language the results of observations that have been performed and the probable results of future observations.

The radical change that contemporary science has brought to the concept of "scientific fact" appears obvious. For nineteenth century science, a fact was a firm, solid, necessitating reality; for present-day science, a fact is a mere possibility of measurement and calculation. This is perhaps the capital point, the one that best defines the difference between the old and the new trends of science. It is derived from the answer that science gave, and gives, to the question concerning the meaning of the ontological predicate, the meaning of the word *is* or *there is*. Undoubtedly, this is the most difficult word of the human language. *There is* something, or something *is*. What does this assertion mean?

For science of the nineteenth century, a physical fact always existed in its own right, and scientific observation was useful merely to show its qualities and manifestations. In other words, the existence of the fact was presupposed, as something necessary. For contemporary physics and especially for quantum mechanics, such a preliminary attribution of necessary reality to a physical fact is devoid of meaning. The assertion "x is a fact," or "x exists," merely means: "it is possible to determine concerning x the probable values of any future observation." Existence, or factual reality, is brought into another category, which is not that of necessity but that of possibility. In contemporary physics, the ultimate possibility of ascertainment, control, and calculation, constitutes the whole meaning of the ontological predicate.

This change of perspective is extremely important not only for science, but also for philosophical analysis. One must bear in mind that it has not come about through a renunciation by science of any of its essential aims, but on the contrary, by a desire to further its effective means of research, which have, in fact, received an enormous impulse through its use. It might seem that science, in following this trend, is becoming too remote from the point of view of ordinary men and especially

from that "common sense" which constitutes the inheritance of notions we all use in our daily life. But actually, the point of view of common sense (and of ordinary men — men not sophisticated by philosophisms) is analogous to that of contemporary science. If you ask an ordinary man (and each one of us is an ordinary man in the things of daily life) why, for example, he asserts that this table exists, he will probably answer that it exists because he sees it, he touches it, and he may use it for the various purposes for which a table is useful. If you insist, and say that this may be an error of his, or an illusion, he will probably answer: "but anyone *may* see it, touch it, and use it as I do." A possibility of ascertainment and control that keeps on occurring as a possibility in the future — that is how one may express the conviction of the ordinary man in the face of the word *is* or *exists*, as referred to the objects that surround him. Of course, the means of ascertainment and control available in the ordinary things of life are much simpler and more primitive than the complicated instruments of measurement and calculation available to science. None the less, both scientific language and ordinary language may give no other meaning to reality than that of a possibility. In fact, this is valid as regards *any* definition of reality (or of a "fact" or of "existence"), no matter how philosophically elaborate, provided that such a definition has a determinable meaning. If one says "reality is substance," or "reality is matter," or "reality is spirit," etc., and if one wants to make sense out of these expressions, one must in any case indicate a *method* that will allow us to ascertain and control the behavior of reality as substance, matter, spirit, etc. If this method is not indicated, the above propositions make no sense because there is no means of distinguishing that which behaves as substance, matter, etc., and therefore *is* one of these things, from that which does not behave as such and therefore is not one of these things. But if an adequate means of ascertainment and control is supplied, a means that may be used in particular cases, the meaning of substantiality, materiality, spirituality, etc., is reduced to the *possibility* of obtaining certain results. In other words, even a reality that is supposed to be necessary immediately becomes a possibility (a possibility of

ascertainment, measure, control, etc.) if a determined and concrete meaning is given to its necessity. And if this meaning is not determined and the necessity is only presupposed, its assertion or negation will not make the slightest difference in the things of ordinary life or in science, and is therefore merely built on thin air.

All this does not mean that science has become idealistic or that (as has sometimes been said) it has reduced the reality of nature to the activity of the subject. The possibilities of which science speaks are objective possibilities; on this point its views have not changed. Moreover, the subject of science is a physical subject that uses organic and inorganic instruments derived from nature. The conclusion that we should draw from these traits of science is that today science moves in a very different horizon from that in which nineteenth-century science moved. This is the horizon of the possible: and the horizon of the possible is the horizon of freedom. If we ask science what are the ways and means of the concrete, effective, working knowledge that is placed at our disposal today for good and for evil, science will answer that the intrinsic structure of that knowledge is essentially freedom.

V

Contemporary Philosophy and Freedom

It is a rather more arduous task to focus the fundamental common traits of contemporary philosophy. Even among scientists there are dissensions and polemics; but scientists do use the same method in their work, and it is this method that enlightens us about the fundamental traits of contemporary science. On the other hand, every philosopher has his own method of work; furthermore, he usually elaborates a language of his own to express the results of his inquiries. However, if one concentrates not on the diverse doctrines and languages of contemporary philosophy but on the nature of the problems it discusses, one may distinguish here, too, the horizon within which it moves. And if one compares the idealistic doctrines that met with such success in the first decades of this century,

with those of the various trends of philosophy in our contemporary world, a change of horizon is obvious. Idealism is a typically romantic doctrine, for which all reality (human or otherwise) is the actualisation and manifestation of an infinite principle: the absolute Spirit, the transcendental Ego, infinite Reason. It is a *necessary* actualisation and manifestation, such that everything that is or occurs, existing and occurring by virtue of a perfect necessitating principle, is in turn perfect, and in any case is exactly what it should be; and the process of reality is the process of a perfection developed and actualised in time. These fundamental traits of the idealistic doctrines ascribe them to the horizon of necessity that characterizes nineteenth-century culture; in our century, they are an historical survival of tendencies and trends that belong to the past century. The other trends of contemporary philosophy, in their principal manifestations, move in a different horizon. Spiritualism, pragmatism, logical positivism, existentialism, in spite of their often irreconcilable antagonism, all move in the orbit of problems that circumscribe a common horizon. Let us take, for example, the philosophy of Bergson, which is the chief manifestation of contemporary spiritualism. This philosophy still preserves the romantic framework of a ceaseless progress of reality, of an evolution that actualizes ever higher forms of life and leads toward an ever more perfect spirituality. But to this romantic framework Bergson gave a new meaning: the evolution of life does not proceed infallibly along one sole line, but is continually broken up into countless ramifications, of which some progress, others are stalled from the outset, and others still are interrupted at a certain point. In other words, the evolution of life, here, is not an infallible progress, but implies a fundamental uncertainty or problematicity that makes it unforeseeable. This is true also concerning the fate of man who, placed at the acme of a certain ramification, continues this evolution in his social and religious life. Therefore even the fate of man is uncertain and unforeseeable; and in the final pages of Bergson's last great work, *The Two Sources of Morality and Religion*, the philosopher gives voice to his anxiety concerning the future fate of man. This undoubtedly implies the acknowledgement of a radical uncertainty and

instability in the development of human life in the world; and though Bergson prescribes the remedy — the revival of a great mystical experience — he does not conceal the fact that this remedy is a mere possibility open to man, not a necessitating, infallible development. Thus in the very core of the greatest spiritualistic experience of contemporary philosophy the sense of the problematicity of life is ensconced — that sense of the possible, from which the uncertainty, the instability, the precariousness of life is derived, and with them its essential, irreducible freedom.

To a greater or lesser degree, this sense is present in all the typical philosophical experiences of our contemporary world. The success that existentialism has encountered, and, still more, the interest it has aroused in those who are deliberately hostile to it, are due to the fact that only in existentialism has this problematic sense of life become the explicit, dominant theme of philosophizing. The fundamental principle of existentialism (which, like any other trend, includes diverse and often contrasting doctrines) is that the existence of man, and generally speaking the being of any *finite* reality, is always a *possible* existence or being. "Possible" here means that it may be, and it may not be, and it *is* only as such. Everything that man comes to be, to know, and to do, is a possibility that he finds within or without himself, a possibility that places him before the alternatives of success or failure, of destruction or preservation, of life or death. The possible structure of human existence and of finite reality is the very foundation of freedom; and freedom means nothing where there is no choice, and there is a choice only when the possible presents its alternatives. But this structure is also the foundation of error, evil, death, and nothingness. When we say, "I want to be this," or "I want to do that," we commit ourselves to the possibilities that seem preferable to us, we work and struggle for them, and we accept the entailing responsibility and suffering. But the possibility we have chosen remains a possibility. Will we, in fact, succeed in being what we have chosen to be, will we attain what we want to attain? We may reasonably hope so, in many cases; never are we infallibly sure. And in any case, the menace of death is always there, to threaten our every

enterprise, our most precious reality. Death is the possible nothingness of every possibility of ours, and of ourselves. If we dwell on this thought, if we realize that all our aspirations, all our work, every person or reality to which we are devoted, is constantly threatened by possible nothingness, by death, we are immediately taken with that *feeling of dread* (*Angst*) which is the most popular, but not the most important theme of existentialism, but which is certainly not an invention of existentialism because we have all experienced it.

But the possible has not only a negative and nullifying aspect; it has also a positive and constructive aspect. And this is the aspect that guides our choices and decisions, that makes us commit ourselves to plan, to work, and to hope. Dread is paralyzing; it prevents us from adopting a line of behavior, from taking decisions, from working. It makes us like flotsam, helpless in the face of the casual course of events. We must acknowledge that nothingness and death threaten us on all sides; to ignore it or to forget it would be a childish illusion. But above all we must accept the possible in its totality, instead of dividing it in half and being fascinated or paralyzed by the negative prospect. If the success of our possibilities is not necessarily guaranteed, this also means that it is not necessarily denied; we may endeavor, and we should, because only in this endeavor lies our freedom and dignity as men on this earth.

The clear recognition that we are living in the possible and only in the possible warrants this endeavor. And this recognition implies the refusal to think and speak in terms of necessity: nothing is necessarily established or determined, either for good or for evil, either for us or against us. We may, and we should, use our freedom. I think that the greater vitality of religion in respect to philosophical doctrines lies in the fact that religion deliberately leaves man in the reign of the possible. Religion says "Hope," not "Be certain"; it says "Be vigilant," instead of fostering a delusive certainty. It endeavors to deliver man from the tyranny of things, events, and other men.

VI

Freedom and The Transcendental Possibility

We may now draw the sum of the brief outline we have sketched of the salient traits of contemporary science and philosophy. To obtain an effective comprehension of freedom, we directed our first enquiry toward science; and science, with its concrete methods of procedure, with its operative functionalism, supplies us with an effective delimitation of the notion of freedom. We have seen that in contemporary mathematics the criterion of rationality is merely the possibility of a discourse which, once it has been chosen, constantly remains a possible choice. We have seen, in the field of physics, that the validity of a method of procedure (and of any proposition that expresses it) consists merely in a possibility of measurement and calculation which, once performed, still presents itself as performable and may therefore be indefinitely repeated. These criteria presented by contemporary mathematics and physics, not in their doctrines and hypotheses, but in the procedures with which they work, may be assumed as the definition of freedom. From this point of view, freedom should be understood as a possibility which, once adopted, presents itself again and again as possible; as a choice which, once it has been chosen, may be repeated again and again. In philosophy, in morals, in politics, in sociology, in every field or domain of human activity, we may find the expression of this concrete freedom.

In all these fields, as in science, the possibilities and the choices are *not equivalent*. There are choices that, when they have been taken, diminish or nullify the possibility of choosing again in the same direction; and there are choices that, once they have been taken, consolidate, and reinforce and constantly guarantee the same possibility. Only this second choice is *free*, and it is the only *normative* choice, in the sense that it continually presents itself as its own norm. Only the decision of a free choice is an authentic decision, that is to say, a decision that connects the future with the past, making what it is possible to acknowledge and appropriate of the past still pos-

sible in the future. But the authentic decision is not a fact, nor does it convert the choice into a fact; because the "chosen choice" remains the one *to be chosen*, the norm of every future choice. Whereas the unauthentic choice stalls or dissolves its own possibility; this does not mean that it is factually impossible, but merely that it is untrue to the principle that makes it possible, and therefore includes an incurable contrast that condemns it to failure.

We may consider some cases in which these traits appear particularly obvious: in the first place, the choice of a religious, political, or philosophical creed. This choice opens up before me the possibility of a certain *mode of being* of my ego and, correlatively, of certain *relations* with other men and the world. If the choice that I have decided upon eliminates or jeopardizes the possibility of the mode of being or of the relations it apparently had in mind, the possibility of choosing again in the same way becomes very thin. Ultimately, I shall have to acknowledge that I have made a mistake; my choice was not authentic, and it was not a choice that I could constantly maintain as an open possibility before me. Through inertia, or for other reasons, I may proceed in the track in which I find myself, and live *as if* that choice were still possible for me; but it is this "as if" that will reveal the inner contrast and cleavage of my existence. Whereas if the choice I have taken will make that mode of being and those relations with others that I anticipated possible, the possibility of choosing again in the same direction will become the norm of my future line of conduct; and every act of mine will continue to be one of choice that will render the possibility of that choice stronger, more dynamic and more imperative. The choice, of course, is not an instantaneous act; it is an historical process, the historicity of which is actualized in the authentic choice.

We may take another equally obvious example. Is the choice of a people that chooses (without coercion) a totalitarian government an authentically free choice? Yes, if all choices are equivalent and therefore equally free. No, if a free choice is only the one that safeguards and consolidates its own possibility to choose (to keep on choosing). It is obvious

that in the first case there is no difference between choosing and not choosing: both lead to the same result. In the second case the difference is decisive; the choice has become a norm for future reference, and its freedom is guaranteed.

The principle at the basis of this point of view is the possibility of the possible as such: what I call the *transcendental possibility*. It is not a principle that will prevent man infallibly from making mistakes; I think that a principle that pretends to do this can be nothing but an imposture. I would rather say that it places man face to face with his responsibility and shows him the risk entailed in every decision of his, that it stimulates his vigilance and prevents him from cherishing the dangerous illusion that he may entrust his fate to a system that will think, decide, and act for him, and relieve him of the labors and dangers of freedom.

NICOLA ABBAGNANO

University of Turin.

The Review of Metaphysics, Vol. V, No. 3, March 1952.

NEW ONTOLOGICAL PROBLEMS IN THE PHILOSOPHY OF NATURE *

Space, time, substance, and causality were the four categories of existence which ruled classical physics, or, more precisely, classical physics was based on absolute Euclidean space, homogeneous equably flowing time, indestructible eternal substance composed of elementary particles, and wholly unambiguous causality as defined by Newton's second law of motion. These fundamental concepts were just as basic to physical realism as to the critical idealism of Kant: for him space and time were the forms of our intuition, substantiality and causality, the most important forms of thought. Classical physics' world-view inclined either toward deism — God had created material substance and its laws and retired from the scene — or toward a materialism, which hoped to explain life and souls by the chance arrangement of matter and its adherence to laws. Its ontology seemed so self-evident that Oswald Spengler, although he approached it from the side of mathematics, saw in this system of concepts essentially the ultimate form of Western physics.

Since the turn of the century, however, a double upheaval has occurred, the formulation of the quantum theory and the theory of relativity, providing the ground for the development of modern physics. These theories issued from the problems of light that, in their strict forms, could not be assimilated by Newtonian physics. Before the turn of the century the wave theory had been victorious over the emission theory, and an hypothetical ether was assumed which was intended ultimately to represent absolute space and to play a role similar to that of Anaximander's *apeiron* or Aristotle's *prima materia*. This last role seemed required since many philosophers of nature (*e.g.*, Oliver Lodge) believed that they should see in matter and its elementary components the singularities, the exceptional

---

* Translated by James C. Haden.

peculiarities of the ether. However, since the ether held itself strictly incognito, Albert Einstein renounced it and declared that all systems in uniform, rectilinear motion are equivalent. The *first* portentous ontological consequence of this renunciation was that statements concerning spatial and temporal separation become relative. True relativity means, however, that objectivity and subjectivity enter equally into all statements, for to everything relative, as Max Planck once said, an absolute belongs. In this case the absolute was the combination of space and time into a four-dimensional spatio-temporal unity, which observers in different systems split into different space and time determinations. Our statements concerning space and time are thus neither merely subjective nor merely objective; rather a *subject-object relation* enters into them and makes them all relative. There is, to be sure, within the four-dimensional spatio-temporal unity a region of a spatial type within which the space-axes of the different observers lie, and the same is true for the temporal region. But even if there is no one universal time or simultaneity, temporality nevertheless plays its own role in contradistinction to spatiality, though both are expressible mathematically. We can say in the sense of critical realism that our spatial and temporal measurements are commensurate with the ordering relations of things and events.

The "special" theory of relativity was followed in 1913 by the general theory, which, on its physical side, is a theory of gravitation. The motions of objects under the influence of gravitational force are describable by mathematically distinguishable (geodesic) lines in a four-dimensional continuum of changeable curvature. The variable metric made space a so-called Riemannian space with variable curvature. As it is generally expressed, one cannot use the same measuring rod anywhere in space, any more than on a map of a mountainous region. A "plane" in this continuum can be treated analogously to a bent surface. This variable metric, however, is attested by the distribution of matter and energy itself; space, time and matter have thus become an inseparable whole. Hence one has the *second* ontologically significant result that one can translate the *dynamics* of classical physics into a non-euclidean

geometry. The world, as a whole and macroscopically, thus becomes the actualization of an ordering of matter for whose mental handling the mathematicians have indeed prepared the way but which is no longer intuitively representable since it corresponds to spatial and temporal intuition only in our tiny sphere of life.

The third step was of a *cosmological* type. Mathematical theory indicates, and astronomy and astrophysics point in the same direction, that space (no longer intuitively representable as Euclidean) is to be assumed to be finite and closed; the number of the heavenly bodies and of their material elements as well is enormous, but nevertheless finite. But the universe is conceived of as extended; the galaxies are separate from one another. This completes the development of our world-picture, which began with Copernicus. When the earth forfeited its stationary central position, the sun took over its distinctive role; but now the earth, like the sun, can be chosen as the fixed center, though the description of the planetary orbits becomes thereby more complicated. In truth, even the sun is not stationary and central, nor is our galaxy either; no body in the world can make that claim. The galaxies cohere through gravitation, but they are at a distance from one another; there is no point at rest, there is no center to the world. Hence a third significant result: the center from which the universe stretches lies external to the material world; the material cosmos has an immaterial, ideal center.

And now the *fourth* step from cosmology to *cosmogony*. If the cosmos is expanding, this expansion must have begun at some time, with an explosion; Pascual Jordan says an elementary neutron-pair arose and divided, thereby producing gravitational energy, which is negative, compensated for by the positive material energy of newly arising neutrons. There are more "conservative" cosmogonies which are similar to Kant's *Theorie des Himmels* of 1775, postulating turbulent masses of gas at the beginning, and more radical ones, which go behind this phase and treat of the origin of the mass of gas itself. But in all these theories we come finally to an absolute beginning of the world, and, through other considerations as well, to a

historical view of the universe; its age is customarily computed today as several billion years.

But herein the problem of time is raised in its full acuteness. What went before? But is it meaningful to speak of time without a changing world and without a being with a time-sense? It would be permissible for us to think of the "time before" a changing world, before the "explosion" of the primal neutron-pair, as extending back asymptotically into infinity, according to our time-sense,[1] but the question of "whence" remains connected with the problem of time; it was in connection with this question that the problem of time occupied both Augustine and Schelling, to name only two outstanding thinkers. The problem of time, however, would afford no insuperable difficulties if the totality of reality could be regarded as determined. It has been familiar to us for a long time, quite independently of the theory of relativity, that a determinate world would be completely comprehensible to a "Laplacian demon"; we can think this even more readily of a space-time unity. It would be eternally present to an infinite mind as a four-dimensional ordered structure, and only to us finite limited beings would its order appear to be a succession, since we traverse it. Also, a spatially finite universe with a temporal beginning, in our sense of the word, which would be extended (at least as we conclude from observations made in our period), could be surveyed in one aspect by an infinite mind; and if the laws hold for its totality it could be thought of as eternally present. The hypothesis of a "beginning" would then not be absurd.[2] In any case an ordered structure would not need to

---

[1] If we take our time-sense as basic, we must accept a transformation such as Bernhard Bavink proposed, namely, that the objective order u, which the physical cosmogonies believe they have discovered, and our temporal intuition T stand in the relation $T = \log u$. Then for $u = 0$, $T = -\infty$.

[2] From an external standpoint we could observe the earth circling the sun. Whether we see the earth actually moving or simply observe an elliptical orbit around the sun is independent of our time sense. This observation is analogous to that of the relations between the three-dimensional display seen by us and the more comprehensive display (of which ours would be a simplification) open to a conceivable superior being.

be infinite: it can be essentially finite; there can be a "first" member, as in the number series; or there can be a first and a last member.

The *special* problem of time originates in the recognition of free acts. But let us postpone this problem until we have considered further, by examination of the second line of development of modern physics, the limits of what a contemporary ontology of nature must take into account.

The change in our views of the smallest parts of the world, effected by *microphysics*, has been as great as the changes in our cosmological ideas. The quantum theory is expressly a theory of discontinuity. It also issued from the problem of light and radiation. The quantization of energy already bore within itself the germs of the development which later unfolded. The two consequences most important for natural philosophy are the *dual nature* of light and matter and the *limitation of the principle of causality;* the two are closely related. Waves and corpuscles are not simply two different mathematical expedients for treating elementary events, but the wave nature of radiation is evinced through the phenomena of interference; the corpuscular nature, through localized energy effects which are quantized. In order not to fall into a logical contradiction, the wave can be considered ontologically as a potentiality for corpuscularization. In general, however, corpuscles are no longer to be granted a persistent identity; they change and are to be found in their individuality only in elementary processes. A supra-individual power expressing itself in collective laws thus stands over against individual acts. Quanta of energy and mass are no longer the truly real, but quanta of action are. It is noteworthy that events are the elements of reality, not the bearers of events; thus in the theory of relativity the manifold of events constitutes the four-dimensional continuum. Such events, however, can no longer be treated as causally unambiguous. The question is: in the Heisenberg uncertainty relation, is it a matter of mere indeterminability or of indeterminateness? Physics cannot decide this question with certainty. But the fact that the primacy of probability is established in modern physics, that the ultimate magnitude in computation

is a probability, and that the threshold of determinability is given by Planck's constant, indicates a threshold of the determinateness of passage (*Geschehen*) itself. The reactions of elementary components are in fact determined, but only within a certain range, and not univocally. Consideration of this interpretation suggests an existential concept (*Seinsbegriff*) for matter, in which thus dwells a threshold of contingency, of choice, analogically speaking — and we can no longer speak otherwise — an urge toward individualization with a certain, although unconscious and unsensing, selfhood (*Eigenständigkeit*), a drive toward independence.

If we take all this together, the *concept of matter* itself has undergone a decisive change. Concerning what seems material to us (*i.e.*, spatial and temporal in sensible qualities) we must either radically withold judgment or venture the hypothesis that it is either the actualization of an ideal, mathematically ordered structure or an urge toward individual actualization, the potentialities of which are controlled by the ordered structure. If we form this unified hypothesis, we must realize that we can *form* no other, for there are only *two* ways which are comprehensible to us: that of mathematics with its logical, ideal orders and that of analogy. The material world would then be will and idea, but not in the Schopenhauerian sense, but rather in the sense that what exists would be a will toward self-assertion, the self-representation of its relationality to us in "logic." That would be the translation of Schopenhauer's language into realism, which in turn might relate to Leibniz's central idea. In religious terms, which is always the language in which we can make ourselves understood most easily, material reality is the creation of a God who geometrizes, and at the same time the self-determination of his creatures, who really ought to be and want to be.

If we turn to *living* nature, the struggle between vitalism and mechanism dominates the discussion; in fact, since it is almost identical with the opposition between a teleological and an ateleological view of reality, it previously dominated the whole of philosophy. Platonism, Aristotelianism, theism inclined to teleology and vitalism; atheism and materialism, to

antiteleology. Kant evaded the conflict by his system. The founders of neo-vitalism, Driesch, Spemann, Woltereck, Uexküll, tried to prove the uniqueness of the laws of living things empirically. Researchers in genetics and mutation in part believe, in alliance with neo-Darwinianism, that they are able to explain the development of life physico-chemically. We cannot agree with Driesch's argument, which is representative in its clarity of thought. However, we take the attempts to explain the structure and functions of organisms from research into mutations and genetics, which in truth lead us only to the assumption that determinate complex molecular centers stimulate the formation of specifically organic materials which are necessary for life, as an invariably inadmissible extrapolation, which eventually destroys itself the moment we try to account for human, self-experienced conduct. Quite apart from this, one may be aware that a genuine scientific explanation would only be given if one could deduce the consequence by mathematical principles from the foregoing.

What contribution do all these considerations make to the particular philosophical question concerning the *concept of being*? We believe that the following must be regarded as essential for the present problem:

1. What exists presents an *ascending series*, the steps of which demand distinctive existential laws and concepts. This thought runs through philosophic thinking from Plato, Aristotle, Plotinus, Leibniz to modern critical realism and the ontology of Nicolai Hartmann. But then the relationships and the interpenetration of the steps require that they have an extensive common essence so that the ontological problem of the ascending series passes over into a metaphysical one. There are two extremes: one is the renunciation of this question and restriction to the clarification of the series and the working out of its categories. The lifework of Nicolai Hartmann was devoted to this, but this agnostic course is unsatisfying and metaphysical presuppositions are always creeping into it. The other extreme is a simplifying monism, the usurpation of all levels of existence by a single one, like materialism on the one hand and idealism on the other. There is no other

possibility except to think in analogies and, without ignoring and obliterating the distinctions, to see in all reality the objectification of idea and of will, and then to venture a grand synthesis of the thoughts of Plato, Leibniz, German idealism, and Schopenhauer: reality is a realm of gradations in which supra-individual norms are actualized in individual acts; it is to be understood by analogy with the interplay of freedom and compulsion.

With individualization there enters a moment of determination of what was formerly indeterminate in all the realms of existence: on the highest, the human level, as conscious and responsible freedom; on the level of life, as latitude in action and reaction; on the level of microphysics, as a threshold of the limits of a sheer probability.

2. *Temporality* remains the most decisive secret. The problem already raised significantly in the conflicts between Heracliteanism and Eleaticism, was especially formulated by Augustine, and has again become a leading present-day problem.

We said above that if the world is thought of as thoroughly determined, the succession of our experience can be thought of as corresponding to a simply existing order. Temporality is then a reality: namely, that of our experience, but as such only a relative and subjective reality that could be comprehended by an infinite spirit as eternally present to him; in religious parlance, the order thought and willed by Him would be lived through by us as subjects. If we admit free acts, however, it may be that we attribute to individualization in every stratum a moment analogous to freedom; in the realm of life, chance and the latitude for it; in the psychic realm, scope for phantasy; even in the elements of inorganic nature, a threshold of unconscious choice, as it were. If we limit ourselves to the human freedom given to us as a basic phenomenon, then that order, which is called the "world-plane" in relativity theory, presents only the limits, the statistical cross-section, which is surrounded by a cloud of possibilities. Then we are confronted by the alternatives: (a) we must think of these free acts as eternally simultaneous. It can of course be shown that this would not be logically impossible, though it would

drive a wedge between a transcendent Ego (which within its bounds is set in a simultaneous totality of free decisions) and the empirical Ego (which experiences this actualization of possibilities as independent and successive). We do not draw this conclusion, because such an interpretation of the given phenomena would make them into mere appearances at the disposal of a mental construction. The second alternative remains: (b) there is only a *genuine temporality* for the actualization of *supratemporal potentialities*. This however would, as we can suggest here, point to a *second*, truly psychic, *time dimension:* if we consider the four-dimensional world-continuum, the union of space and time, the spatio-temporal form of the "world-plane," however we wish to put it, as a supra-individual frame for the cosmos, then, as I tried to show in 1936 in *Wissenschaft und Weltanschauung*, free acts, which also can have physical effects, require a fifth dimension. Time, which in Kant's system already had a double meaning as the form of intuition of "outer" and "inner" sense, now contains a two-dimensionality: as physically measurable time it enters into the four-dimensional continuum of the "world-plane," as inner, physically unmeasurable time of free acts of self-determination it transcends the "world-plane." This second dimension of time would moreover be the presupposition of giving a meaning to the thought of survival after death. The "world-line" of our body, insofar as it is bound to the world-plane, extends from our birth to our death. Our free acts point the way into a higher dimension, from which we command a view of the totality and direction of our life, just as through memory we command a view of parts of "time past" and thereby have them "present." The survival ought not to be thought of in empirical time-dimension, but in the second time-dimension.

However, let us return to the problem of matter. One calls "material being" that existent which lends itself to mathematical presentation at least within limits of indeterminacy and causality, and the inner relations of which can appear as in a graphic representation. Life, however, demands a super-ordinate type of lawfulness oriented to subjective experience

and perhaps thus utilizes the free scope, the indeterminacy of elementary events. In man, freedom is raised to the point of consciousness and responsibility. Thus the scale of reality in the last analysis is a scale of psychic being, in which the higher strata express themselves by means of the lower.

ALOYS WENZL

University of Munich.

The Review of Metaphysics, Vol. V, No. 3, March 1952.

ON WHITEHEAD'S THEORY OF PROPOSITIONS

I

The Conceptual Framework

A

In order to determine the systematic position of the concept of propositions in Whitehead's doctrine we should first refer to the distinction between the actual temporal world and the elements which help form it.[1] The actual temporal world can be analysed into a multiplicity of occasions of actualisation, of actual entities, of drops of experience. In this analysis we might say that the world of experience is a world on a single plan only. Actual entities, to be sure, can be analysed in terms of subject and object of experience or in terms of subject and superject. But this analysis does not change the position of the actual entities as ultimate data of knowledge and as ultimate events of the ongoing process. It puts forward only the structure of the actual entities.

As against the analysis of the structure of the actual entities we find a different kind of analysis in Whitehead: that of the constitutive elements of the entities. "Such formative elements are not themselves actual and passing... They constitute the formative character of the actual and temporal world."[2] This kind of analysis, being an analysis of elements, destroys the integral essence of the actual entities. The Platonic attitude of Whitehead's theory becomes manifest in the fact that the formative elements which are discovered through removing life and temporality from the actual entities are not just abstract concepts. They are entities of a particular ontological status of their own. With those formative elements Whitehead lists: (1) creativity, that is to say, that feature of the actual entities which provides for the temporal passage; (2) the ideal entities or forms which characterize the actual entities and provide the potentialities which lie ahead of them; (3) God, the entity whereby the indetermination of mere creativity

---

[1] *Religion in the Making*, 77.

[2] *Ibid.*

is transmuted into a determinate freedom, the entity which directs the shift from mere creativity to a specific conjunction of eternal objects and actual occasions.[3]

This list of the formative elements of the actual entities makes clear that Whitehead's problem is how to bring together the actual entities and the eternal objects. His important distinction is between the entities which are in time and the eternal objects, since the conceptional recognition of the latter does not imply any necessary reference to definite actual entities. The other two elements, creativity and God, have a different function within this doctrine: creativity from the outset characterizes the very nature of actual entities since actual entities are all involved in time and process. One might say that creativity characterizes the being of the actual entities while eternal objects characterize the content or the qualities of them. On the other hand God is not a formative element of the actual entities since he is neither an element of their structure nor an element of their content. God, one pole, makes the eternal objects, relevant to the actual entities, the opposite pole. He performs a necessary function of mediation, for actual entities *qua* process do not have the capacity to remove the eternal objects from their passive givenness nor do the eternal objects have the capacity to drive themselves towards actuality. Since process and content are distinct they need a third power which combines them. This power is God in his primordial nature. The nature of God as an entity in between has been very clearly stressed by Whitehead: God is the actual but non-temporal entity.[4] He shares the feature of actuality with actual entities and the feature of non-temporality with eternal objects.

It has to be emphasized that this list of the metaphysical concepts does not contain propositions. If propositions, in Whitehead's doctrine, connote the idea of the possibility open for realisation in the sphere of the actual entities, then they are, as he himself puts it, something in between the eternal objects and the actual entities. They are distinct from God who is also an in-between entity. God as an in-between entity is

---

[3] *Ibid.*, 77-78.

[4] *Ibid.*, 78.

active while propositions are passive, to be realised in the actual process of events. It seems that when Whitehead introduced the concept of proposition he was driven by a kind of architectonic design: corresponding to God who is an in-between *actuality* there should be propositions which are in-between *contents and possibilities.*

B

Why did Whitehead term the possibilities for realisation "propositions"? "Propositions," as a logical term, connotes the meaning of a sentence, apart from its symbolic or verbal expressions. It seems to me that Whitehead tried to utilize the distinction between the meaning and the expression as a starting-point for his own concept of propositions. If propositions are meanings independent of their expressions one might understand them as meanings which are not yet definite. Moreover, if propositions are meanings they might be considered as beings in-between the terms, *e.g.*, table, brown, etc. in the expressed sentence: This table is brown. Propositions go beyond the terms since they are combinations of them, but lack the finality or closedness characteristic of a sentence. Thus propositions are more definite than the elements and yet not as definite as a sentence.

Unless I am wrong this analogy between the logical proposition in logic and the meaning of propositions in Whitehead's doctrine might be a clue to the understanding of the strange fact that some possibilities are called propositions by Whitehead. Let us put it in a different way: Propositions as meanings can be expressed in various forms, for instance in various languages. Likewise, Whitehead seems to assume, propositions as possibilities can without any change be realised in quite different ways, *e.g.*, "Napoleon wins the battle at Waterloo" might be realized as a truth or a falsehood. The variety of possible expressions in the field of logic seems to correspond to the variety of outcomes in the field of actuality. In both fields the term "proposition" connotes something which is both independent of and broader than the actual expressions or occurrences respectively.

All this might be an analogy only. The most significant

fact is that the term "proposition" has been transmuted from the field logic to the field of ontology. This ontologization of logical terms certainly indicates an essential trend in Whitehead's theory in general.

Let us turn now to a critical exposition of the theory of propositions itself.

II

The Two Aspects of Propositions

A

A starting point of the theory is to be found in the general idea of the relationship which exists in the universe: "Every abstraction involves reference to the totality of existence. There is no self-contained abstraction." [5] Within this frame of reference one can find some more specific indications as to the logical and ontological position of propositions. "Speculative Philosophy can be defined as the endeavour to frame a coherent, logical, necessary system of general ideas in terms of which every element of our experience can be interpreted." [6] The given element of our experience is a particular occasion or event, or rather a combination of occasions and events. The coherent system of interpretation can be realised only through the assumption of a totality of existence. This is an example of what we may call, following Whitehead's own terminology, "the ontological principle." There is no coherent system short of the totality of the universe. Propositions are parts of this coherent system, both as functional *concepts* interpreting the given occasions of our experience and as *strata* of the universe, or more exactly as *stages* of the process. We find from the outset some hints as to the double meaning of "proposition" in Whitehead, as functional concepts serving the aim of interpretation of experience and as levels of existence as well.

There are two poles within the system of coherence of the totality of the universe: potentiality and actuality. "It is evident that 'givenness' and 'potentiality' are both meaningless

---

[5] "Immortality," included in the volume: *Essays in Science and Philosophy*, 62.

[6] *Adventures of Ideas*, 285.

apart from a multiplicity of potential entities. These potentialities are the 'eternal objects.' Apart from 'potentiality' and 'givenness' there can be no nexus of actual things."[7] Or in a different formulation: "... actuality is the exemplification of potentiality and potentiality is the characterisation of actuality... Actuality and potentiality require each other in the reciprocal rôles of example and character."[8] Each concept ought to find its status and justification between the two extreme poles, between multiplicity in the realm of potentiality and multiplicity in the realm of actuality. The logical and ontological status of propositions can therefore be defined in between the poles only: propositions are in-between modes of existence and thus their function is to serve the general systematic ideal of coherence.

B

One is permitted to state Whitehead's problem as exemplified in his theory of propositions as a modification of that of Plotinus. Plotinus' problem, considered in its essence, is the problem of the transition from the one to the many. The theory of emanation was supposed to explain the method (let us recall the original meaning of the term "method") of this process. The various strata of the cosmos were put forward to explain the gradual character of this transition. Instead of the Plotinian transition from the one to the many we find in Whitehead a transition from a multiplicity to a multiplicity, identified by him as a transition from potentiality to actuality. The realm of potentiality from the outset is a realm of multiplicity; there are many eternal objects just as there are many given occasions. Whitehead assumes the multiplicity in both poles as a given fact and hence as an unexplainable one. There is thus no question about the multiplicity, there is only the question of the transition from one multiplicity to the other. As a matter of principle two ways of solving this problem seem to be open: the way of emanation and the way of a dialectical development. Emanation is precluded since it would be difficult to hold that actuality emanates from potentiality.

---

[7] *Process and Reality*, 72.

[8] *Modes of Thought*, 9.

Plotinus could assume emanation, since he holds that the process to the world is a process from the higher to the lower and that emanation starts from the excellent reality. Dialectic is excluded since there is no force within the domain of the eternal objects which would drive one eternal object towards a nexus with other objects. There is within the domain of the eternal objects a coordination, *i.e.*, a static-given relationship. But there is no intrinsic basis for a dynamic relationship and a dialectical relationship is a dynamic one. Dynamics can be found only within the realm of actuality. Thus we see that Whitehead faces the problem of the transition from one realm to another — a Neo-Platonic problem rather than a Platonic one — without a method.

We may formulate the problem in a different way. There is a multiplicity at both poles of the totality, the multiplicity of eternal objects and the multiplicity of occasions. But there is something in the realm of actualities which we do not find in the realm of potentialities: to wit, not only a multiplicity but a nexus involving specific relations between occasions. How do we explain the transition from a neutral multiplicity to a specific nexus? It seems to me this is the real problem in Whitehead's doctrine. To solve this he introduced the concept of the proposition.

There is a double relationship of the specific nexus to the given multiplicity of eternal objects: the given nexus is a *realisation* of the external objects and an *illustration* of them. The nexus, as a realisation, indicates the very shift from the realm of potentialities to the realm of actualities. The nexus, as an illustration, indicates that the nexus is only a part of a wider totality. The nexus is a limitation of a multiplicity of eternal objects to a specific set of contents. In other words, various eternal objects are not just put together. There has to be a specific meaningful relationship between them. Propositions exhibit this specific relationship between some specific eternal objects. Hence there has to be a principle of establishing this specific relationship. We may use Solomon Maimon's terms and say: There has to be a specific determinability between some eternal objects in order to establish a nexus between possible eternal objects. Propositions are formed or

given according to the principle of determinability existing between some eternal objects as against other eternal objects. Nexus are formed according to the maxim *omnis determinatio est negatio.*

C

The most difficult problem for Whitehead is not the transition from the multiplicity of eternal objects to the multiplicity of experienced occasions, but the "making of the first knot," that is to say, of proceeding from a neutral multiplicity to a specific one. To put the question in other words: how do we get contents altogether? It seems that Whitehead realised that a gradual transition, or let us say emanation, from indeterminability to determinability, is precluded. Therefore he assumed the stage of determinability to be a given one. Propositions are "categories of existence" like prehensions and eternal objects and there is no reason to ask why something which is given is given at all. Whitehead was certainly right that there is no way to deduce a specific content from an indeterminate multiplicity of qualities called "eternal objects." But there is still the big question whether the general principle stating that "the epistemological difficulty is only solvable by an appeal to ontology" can be applied to this problem. Is it necessary to carry out this transformation into a category of existence and not to be satisfied with the assumption that a specific nexus is merely a methodological device? To make a methodological device into a category of existence is to go counter to the maxim *entia non sunt multiplicanda præter necessitatem.*

D

If we can understand the reason that brought Whitehead to try to solve an epistemological problem by shifting it into the ontological plane we can perhaps come to understand his ontological approach to epistemological questions in general. There seems to be a common feature both of actual occasions and of contents. Both are given, or to put it negatively, they are non-deducible. Yet there is a difference between the givenness of the content and the givenness of a fact or of an event, since a content does not intrinsically possess a temporal character. Whitehead, because of his ontological attitude, was

forced to consider even the given contents of propositions against a background of time. One wonders whether he interpreted the realm of determination as an ontological realm because he "took time seriously" or whether he understood it in terms of time because from the outset he took it as a category of existence.

There are certain methodological features in propositions which ought to be analyzed now. When Whitehead names propositions "theories" or "a notion about actualities, a suggestion, a theory, a supposition about things," [9] he certainly uses methodological terms. It can hardly be assumed that suppositions, notions, etc. have any ontological meaning. From the methodological point of view Whitehead is faced here with the problem of priority: are the actual occasions prior to propositions or are propositions prior to actual occasions? Let us consider Whitehead's own example: the battle of Waterloo. This battle resulted in the defeat of Napoleon. But the abstract notions expressing the possibilities of a different course of history are relevant to the facts which actually happened. "Thus in our actual world of to-day there is a penumbra of eternal objects, constituted by relevance to the battle of Waterloo." [10] Does Whitehead assume that the proposition asserting a different result of the battle can be detached from the knowledge of the actual result? Certainly not. Therefore we are bound to say that we can state possible results, that is, formulate propositions only if we start from an actuality and go back to a potentiality. Hence there is a difference between the knowledge of propositions which starts from actual occasions and goes back to potentialities, and the structure of the entities themselves where potentiality precedes actuality. We obtain propositions by regression only, which means that there is no way to obtain them except that of construction. The ontologization of propositions based on the idea of the givenness of contents or of nexus contradicts the methodological character of propositions — as shown in the way we arrive at them.

---

[9] *Adventures of Ideas*, 312.
[10] *Process and Reality*, 282 ff.

E

Propositions form an intermediary stage of existence between eternal objects and actual entities. As an intermediary stage they, together with feelings, are listed among the "hybrid" entities.[11] Whitehead tries to show propositions as sharing both in the realm of potentiality and in the realm of actualities. As sharing in the realm of potentialities they are "impure" potentialities, since only eternal objects are "pure" potentialities.[12] The same factor which makes propositions "impure" potentialities makes them share in actualities, the factor of determination. "Where there is no decision involving exclusion there is no givenness." [13] But a proposition involves exclusion, since a proposition is a specific nexus, requiring the affirmation of some qualities and the negation of others. Yet there is a difference between exclusion as a feature of propositions and the nature of actuality as indicated in the term "entertainment" or "importance." Propositions are not actualities proper since they are not closed in themselves. They stand for something else, for something which exists outside them, for actual events. From this point of view we consider propositions as possibilities, that is to say, as something which might be in actuality but which is not yet.

Propositions are patterns of actualities. An actuality is always a closed entity, enjoying itself, as Whitehead puts it, whereas propositions are open entities directed upwards to the eternal objects and directed downwards to the actual occasions of experience. The fact that they are open entities *determinable* but not fully *determined* make them "impure" potential entities. Thus we arrive ultimately again at the problem of determinability: the difference between various categories of existence is one of intensity of determination. Eternal objects are indeterminate since they do not form a nexus. Compared with the eternal objects propositions are determinate since they affirm certain qualities and exclude certain others. Yet compared with actual occasions propositions are still indeterminate since they indicate several possibilities and do not assert a

[11] *Ibid.*, 287.
[12] *Ibid.*, 32 f.
[13] *Ibid.*, 69.

given unambiguous realization. For the actual facts, propositions are still *determinanda* and not *entia omni modo determinanda*. Since the transition from potentiality to actuality is one of limitation, we might say that the first act of limitation is performed by propositions and the second one by occasions. Thus the relationship of propositions to eternal objects is similar, as it were, to the relationship of occasions to propositions. Hence the problem of determination is the guiding principle in drawing the demarcation line between the various levels of existence. We meet here again the motive of the ontological approach in general: since determination is *the* trait of actuality, non-determination cannot be a trait of actuality but only of potentiality. Since propositions are both determinate and indeterminate they occupy a position in between.

F

Although Whitehead declares that he is going back to the pre-Kantian tradition, he seems not to accept a distinction between ἐνδεχόμενον and δυνατόν, between *possibilitas* and *potentia*, which was put forth in that philosophy. *Possibilitas* connotes a sheer passive opportunity, an assertion of a future event which is going to be realized through real forces coming from outside. But *potentia* is an active possibility where future events originate through acts of an internal power which create them or put them into being. It seems that Whitehead understood propositions as potentialities in both senses: as *potentiæ*, as active powers of creation of actual occasions, and as *possibilitates*, as hypotheses or suppositions about events. We might say that *potentia* represents the ontological aspect of proposition while *possibilitas* represents the methodological one. But the question remains still open: why do we need to go beyond the methodological domain and suppose that a proposition is a *potentia?*

With this duality of the ontological and epistemological aspect the distinction between "interesting" and "true" is tied up. "It is more important that a proposition be interesting than that it be true." [14] "Interesting" is interpreted sometimes as being "the lure of feeling": a proposition in this case is an element in the objective lure proposed for feeling, and when

[14] *Adventures of Ideas*, 313.

admitted into feeling it constitutes what is felt. Now there is here a double emphasis on the truth value of propositions: (1) a proposition is interesting, since it is fruitful from the point of view of the progress of knowledge. The possible results of the battle of Waterloo are a worthwhile or interesting object of investigation as, *e.g.*, when Max Weber considered the possible results of the absence of historical events in order to attain to and verify a causal chain of actual events; (2) as interesting a proposition is what is felt, that is to say, it occupies the position of an object or a content of feeling. Thus we consider a proposition as interesting if it anticipates possible events, and as a lure of feeling if the realised event is considered from the point of view of its content, since content does not belong to the realm of actuality but to the realm of potentiality. Yet a proposition is interesting and cannot be deemed to be truer (it would be "interesting" to analyse this theory with the tools of the modern concepts of multi-valued logic) since truth is connected with actuality. "Truth is a qualification which applies to Appearance alone. Reality is just itself and it is nonsense to ask whether it be true or false. Truth is the conformation of Appearance to Reality." [15] "The most conspicious example of truth and falsehood arises in the comparison of existences in the mode of possibility with existences in the mode of actuality." [16] Truth cannot be a qualification of a proposition, since a proposition is a mode of potentiality or possibility and does not relate the mode of potentiality to the mode of actuality. Thus truth presupposes a realization of a relation between two relata on different ontological levels. The level of propositions by itself does not provide the basis for the predicate "true" since we do not have here that heterogeneity of levels which is a precondition for an assertion of truth.

What ontological meaning can be attached to the quality "interesting"? One might agree that there is an ontological meaning implied in the quality "truth," if truth connotes conformation, that is, in Whitehead's terms, the full realisation of a potentiality, or being already an actuality. In this sense "truth" means "closedness of actuality." But possibility is

[15] *Ibid.*, 309. Cf. *Process and Reality*, 396.
[16] *Adventures of Ideas*, 314.

not closed: *qua* proposition it is an open entity and *qua* open it is interesting. But does "interesting" have any meaning in addition to its methodological meaning as a stimulus for an investigator? Or let us put it in a different form: does "interesting" have any meaning short of the reaction or response it evokes in the knower, who might be interested? To repeat here the distinction between *possibilitas* and *potentia* we might say: "interesting" has a meaning as an aspect of reason *qua possibilitas*: the meaning of weighing the various probabilities or future events. But "interesting" does not have the sense of *potentia qua* internal creating power.

Whitehead's theory of propositions implies both an ontological and epistemological aspect. The theory is supposed to add to the solution of the general problem expressed as follows: "the true philosophic question . . . how can concrete fact exhibit entities abstract from itself and yet participated in by its own nature?" [17] Whitehead believes that the solution of this Platonic problem of *methexis* can be accomplished through the help of the ontological principle which "can be summarized as: no actuality, then no reason." [18] The theory of propositions tries to be an ontological theory, but there is no actual proof that the solution of the particular problem of the transition from the multiplicity of the eternal objects to a nexus requires an *ontological* level of existence in between.

III

Some General Questions

A

Let us turn now to some questions of principle, already hinted at before, connected with the theory of propositions. These questions are not raised by Whitehead himself, but it seems that they have some bearing on the specific problem of propositions and on some problems of metaphysics and theory of knowledge as well.

Let us ask in the first place: how do we get the propositions? Whitehead says that metaphysics is description.[19] It

---

[17] *Process and Reality*, 30.

[18] *Ibid.*, 28.

[19] *Religion in the Making*, 76.

seems that it would be hard to stick to this clear-cut statement which relates metaphysics to one particular method, that is to say, to description. Elsewhere Whitehead says that by "metaphysics," "I mean the science which seeks to discover the general ideas which are indispensably relevant to the analysis of everything that happens." [20] It seems to me that there is no warrant for tying up the effort to discover what is relevant for actuality exclusively to the method of description. One might say that only actuality itself may be pointed to through description. Only the ultimate fact of the ongoing process must be stated in the form of a descriptive sentence. We use metaphysical concepts with reference to the elements of which actual individuals are composed or with reference to the causes which govern actual process. We are bound, therefore, to go beyond descriptions and use a method of "analytical reflection" as well. This method always employs concepts which are necessary for the understanding of actualities which are not themselves given and which cannot therefore be described.

We may take advantage of a general methodological reflection to help us deal with the specific problem of propositions. Can we consider propositions as given and the statement of them as description? It is obvious that propositions are not given like the actual outcome of the battle of Waterloo. Nor are they abstracted from existences. Propositions are constructed *post factum*. Once we have an actual entity we may ask for the range of possibilities in which the actual entity gets its context. This form of consideration is always a regressive one: starting with what is given and going back to what is analytically possible. Why do we perform this regressive process? Whitehead would say that since each actual occurrence is a determination it is a limitation too. In order to determine something we have to assume a wide range which is to be determined. But the question is how do we get from the generic statement about possibility as indeterminateness and actuality as determinateness to a specific statement about *this* possibility related to *that* actuality? There is no other

---

[20] *Ibid.*, 72 n.

way than a *post factum* construction. Turning meanings into ontological entities might satisfy the ontological principle in general but is not justified by an analysis of meaning as such.

B

The second problem which we have to raise brings us back to the starting point of the very assumption of a realm of propositions. It has been shown that the realm of propositions draws its justification from the need to mediate between the eternal objects on the one hand and the actual entities on the other. Mediation is understood here to mean an assumption of something which is neither an eternal object nor an actual entity and thus can bridge the gap between them. But the idea of mediation in this sense carries with itself an inescapable problem: are we satisfied that propositions do mediate between the two poles or is there a gap between propositions and entities still to be bridged? Once we introduce the idea of mediation we face the possibility that on each level of existence we might need a new mediation and ultimately get involved in an infinite regression of mediations. Once we assume a gap between the actual entities and the formative elements, stating that the two poles belong to different levels of existence, we cannot be sure that any constructive device of mediation would ever really satisfy the very need for mediation. Therefore the question must be raised: if eternal objects are abstracted from actualities why need one assume that they are independent entities needing a *tertium comparationis* between themselves and actual entities? Or to put it in another way: since from the outset there is no meeting ground between actual entities and eternal objects we have to construct a meeting ground. But perhaps we have to change the entire outlook: There is a sphere of meanings and in this sphere we can make a distinction between actualities and their contents. What actually is given will then be a meeting ground of both poles. Whitehead starts with one pole, that is to say, with actual entities, which are concrete in themselves, instead of the meeting ground itself, that is to say, with meanings which are both concrete and abstract, belonging as they do not to an ontological realm but to an epistemological one.

C

For Kant the schema has an intermediary function with which Whitehead's propositions can profitably be contrasted. "Obviously there must be some third thing which is homogenous on the one hand with the category, and on the other, with the appearance and thus makes the application of the former to the latter possible. This mediating representation must be pure, that is, void of all empirical content and yet at the same time, while it must in one respect be intellectual, must be in another sensible." [21] Prima facie, this statement of the nature and position of schemas in Kant's doctrine sounds like a statement of Whitehead. Schema looks like a proposition mediating between eternal objects (concepts) and actual occasions (appearances). But a closer analysis will show that although there is some structural parallelism between proposition on the one hand and schema on the other, a great difference in attitude and meaning between the two doctrines becomes manifest precisely in this particular problem.

The difference might be brought into focus by employing Whitehead's own concept of "formative elements." Eternal objects along with creativity and God are listed among the formative elements of the actual occasions. It seems that "formative" here refers to something of which the actual events are composed, something which is an element of a whole. Eternal objects as formative elements are passive in themselves and have no drive in them towards actual occasions. Kant certainly thought that his concepts, that is to say, categories, are formative elements. But the meaning of "formative" in his doctrine is entirely different; it connotes the active or the shaping power of concepts. These are not *abstractions* but rather *transcendentals*. His concepts tend toward what is given. Moreover, there is no independent meaning attached to the categories besides their meaning as functions forming the given. Therefore while with Whitehead the propositions are given, as the actual entities and the eternal objects are given, with Kant the schema is constitutive of knowledge itself.

The relationship between the nature of knowledge and the function of a schema becomes evident in the fact that both the intellectual and the sensible factors are the two formative

[21] *Critique of Pure Reason*, Kemp Smith translation, 181.

factors ("formative" means here both "being an ingredient" and "creative") of knowledge. The relation established through schematism is one within the universe of discursive knowledge. It is a relation established between the various functions of knowledge and not between the different strata of existence.

There is another feature of Kant's schemata which makes all the difference: the mediating factor for Kant is time. One might put it in this form: in Whitehead's doctrine time belongs only to one pole, since time is essential only to actual occasions. All the formative elements are for him a-temporal. Kant made what is a pole in Whitehead the mediating link between concepts and appearances. Why is this so? Time itself in Kant is a form, a formative element of the given. Time itself is a shaping factor which orders the given in a form of a series or successions. Time *qua* form might be the mediating link between the functions performed by concepts and a formless given. But since time is the form of sensibility it is in fact connected with the given from the outset. The given is given to the receptive sensibility. Therefore the mediating link is not constructed *ad hoc* in order to bridge separated poles, as in Whitehead. The mediating link itself is given. The analysis of knowledge in Kant does not produce time; it attaches a specific function in knowledge to time as given. The ontological doctrine of Whitehead requires the construction of a mediating link; the epistemological doctrine of Kant attaches a function to what is given and not constructed, that is to say, to time. Kant gives meaning to what is discovered; Whitehead gives an ontological status to what is only meaning.

We may use Kantian terms in our criticism of Whitehead's theory of propositions: Whitehead realized that he needed propositions and therefore performed a salient or hidden *transcendental deduction* of them. But his transcendental deduction was not backed by a *metaphysical* one, that is to say, by a phenomenological awareness that propositions are already given and not constructed *post factum*.

NATHAN ROTENSTREICH

The Hebrew University.

The Review of Metaphysics, Vol. V, No. 3, March 1952.

Critical Studies

VIVAS AND THE DRAGONS OF NATURALISM

Professor Vivas has written a book [1] in which he rescues the reader from the dragons of naturalism in our time and carries him to the portals of a religious outlook on the world. The last sentence promises a further essay to guide him once he is within the gates. The hardened naturalist is advised by Mr. Vivas to stop reading on page 292, but the present reviewer persisted to the end.

The book is divided into three parts. The first criticizes in some detail the various naturalistic theories as they appear in philosophy and the sciences. Thus Professor Vivas reckons with the interest theory of Santayana and R. B. Perry, the postulational theory of Charner Perry, the instrumentalist theory of Dewey, the linguistic theory of Stevenson, and again, the cultural relativity of the anthropologists and the genetic account of conscience in Freud. Once these are demolished, the second part looks for the generic structure of the moral experience as focussed in the process of resolving a moral perplexity. Professor Vivas stresses the role of a hierarchically organized system of values espoused by the self which constitutes the person, and repeatedly insists on the objective or "ontic" status of the values. The person is regarded as an axiological not a psychological category; and it is only through resolving moral perplexities that a man finds out, by creating, what he is. The creative element prevents moral decision from being simply self-expression. In fact, the ethical stage, as distinguished from the moral, is characterized by the overthrow of a man's dominant values: "when we repudiate our constitutive values altogether and forge an entirely new personality, a naked, empty self must do the choosing, and how this process is possible is not at all obvious" (pp. 230-31). The third part presents the rise of the ethical attitude in this second birth.

---

[1] *The Moral Life and the Ethical Life*, by Eliseo Vivas. The University of Chicago Press, 1950. Pp. xix, 390. $6.00.

Its essence lies in the absolute sanctity of the person, and Professor Vivas sees this as the answer to the conflict of values in our time.

Professor Vivas scores some hits but also some errors. There is much to be learned from both. I should like to consider them under a number of headings indicating salient points.

Professor Vivas' rhetoric and the use of the argumentum ad sibilentiam. We are warned to expect invidious contrasts (p. 10), and so we expect strong criticism. But at many points we also find anger and vituperation. "Stalinoidal" is hardly an objective description (p. 17); nor is it philosophical criticism to say of Dewey, "He has, unwittingly, undertaken to soften us up for the Red push" (p. 127). Perhaps the vehemence of many passages stems from the strong feelings that attended the personal experience of Professor Vivas' break with naturalism. He is explicit both in the Preface and in various passages throughout the book about the conversion-like character of the experience. In many respects the whole structure of the book is autobiographical. Part I is Professor Vivas resentful of himself. Part II is Professor Vivas looking for a firm self. Part III is Professor Vivas remaking himself. Had the autobiographical element been offered as a datum for careful exploration, it would indeed have helped focus on a wider range of phenomena. As it is, it tends to be simply a presentation of credentials.

Professor Vivas' conception of a practical science, and its strange outcome. Like all sensitive and thoughtful men, Professor Vivas was shaken by the holocaust of World War II. Maidenek with its gas chambers becomes the recurrent symbol of our present world. Professor Vivas says of the "game of a dialectic of concepts" in ethics: "how could a man with a sense of the urgency of the human problem and a vision of the role philosophy has played in history dare to take time for such a game?" (p. 9). He explains that he has selected theories for criticism which "express certain social trends which are actually at work in the modern world and which I consider evil" (pp. 21-22). And again: "I take the immediate and most urgent philosophic task of our generation to be to expose

the sinister, partial, antihuman goals of naturalism until we loosen its hold on our educational institutions" (p. 136).

Actually, Professor Vivas does not study in detail the sociological bases and social consequences of philosophical doctrines, neither his own nor those of his opponents. There are occasional barbed thrusts: pragmatism grew as "a limited parochial rationalization of a few of the dominant forces of American society" (p. 137); Stevenson "is manufacturing the metaphysics of imperialism" (p. 164). But essentially he is arguing simply that a secular society cannot hold back the barbarism in man while a belief in the primacy of the person set in a religious background will stem it. A systematic attempt to correlate naturalism with barbarism and personalism with human values would find many puzzling contemporary phenomena. Not least of them would be the political role of the Catholic Church, in spite of its emphasis on the person, in countries like Spain and Portugal. And equally disconcerting to Vivas' thesis would be the tendency of many peoples in the exploited areas of Asia and Africa to seek national independence and human dignity under the banner not of Christian personalisms or liberalistic naturalisms, but of Marxian materialism.

It is true, of course, that there would be no Maidenek if all men held to Christian love. But there would also be no Maidenek if all men held to Dewey's intelligence or Perry's love or Marx's classless society. How then does Professor Vivas' conception of the primacy of the person add a *practical* dimension to solving the problem of Maidenek? He approaches the question as follows. He first criticizes materialistic accounts for obliterating the moral scheme: "Tell an inmate of Maidenek on the way to the gas chamber that he has not been condemned to die by an iniquitous monster and that what he takes to be evil is not really evil but a meaningless catastrophe, an accident, like suddenly discovering in one a malignant tumor or like dying in an accidental fire. Do you think you have lightened his misery? You have wantonly increased it. The moral scheme preserved the victim's dignity and gave him a superiority over the victimizer" (p. 303). And then his own solution emerges.

The victim will recognize the injustice and look for the ground of evil. And the searching conscience will answer, "You know what the root of evil is; look inside yourself and you will find it. Perhaps not the root of *this* evil but of others for which *you* are responsible. For, certainly, you, too, even you, who now appeal to justice, have you not also denied to others that for which you now appeal, even as it is now being denied to you? Well, in precisely that disregard of another person or, rather, in the practical assertion of the primacy of your own values over the value of the other as person is to be found the root of evil. And have you never brushed off in arrogance another's moral claim? Come now, never?" (p. 310). And, if this is not enough, the victim may learn in the rest of the book that while it is morally impossible to respect a coward or a brothel-keeper, "the ethical man respects the other person and treats him in such a way as to avoid violating his dignity, no matter how unworthy morally he may be known to be" (p. 329). Presumably, then, the victim on his way to the gas-chamber will climax his own sense of unworthiness with an ethical love for Hitler and Himmler.

Professor Vivas' attempt to solve the problem of evil is one thing, but his presentation of it as "practical" science, without even looking at the vast needs of the peoples of the earth in relation to contemporary problems is quite another. People want more than a recognition that they are to count in heaven, even in esoteric philosophical language. For my part, if I have to choose, I prefer Stevenson's frank dismissal of moralism, which Vivas attacks and which on other grounds I would question, to this show of concern without the substance. I think I now understand how Nietzsche must have felt when he said in *The Genealogy of Morals*, after looking into the workshops where virtues are manufactured out of suffering: "Enough! I can endure it no longer. Bad air! Bad air!"

Professor Vivas' criticism of "methodolatry." There seems to me to be considerable truth in Professor Vivas' criticism of the way in which contemporary naturalism has at times almost worshipped scientific method. But I take the philosophical core

of this failing to be a tendency to substitute analysis of scientific *method* for the presentation of scientific *results* or, in ethics, to substitute methodological goals and virtues for concrete human aims and specific forms of character. Sometimes this element in contemporary naturalism seems to me to be a vestige of idealism with *method* replacing *spirit* as the central category. Professor Vivas' criticism, on the other hand, is directed toward limiting the scientific outlook.

Paradoxically enough, Professor Vivas has not altogether emancipated himself from this failing of contemporary naturalism. His whole attempt is to extract a value outlook from the analysis of the *process* by which a moral perplexity is resolved. His outcome is therefore as threadbare in its own way as he sees Dewey's scientific intelligence to be in its lack of regulative principles (p. 122). For the universal sympathy of the experimentalist Vivas gives us ethical love for the person, and for the prudential rules, the values espoused by the dominant part of a particular self. Is there much to choose here? Any richness in the naturalist conception will come not from the initial sympathy but from the results discovered about what man is and can become. Similarly, Professor Vivas' conception acquires richness only from the background of religious values and beliefs it suggests. He might as well bring them in explicitly at the beginning. The fundamental point of difference turns out then to be the theory of what man's nature is and how it is to be determined.

I realize, of course, that Professor Vivas will say he is not being purely methodological but describing the generic structure of the moral experience. He says of human primitives: "If they are human, they are moral; and if they are not moral, they are not human — and this by definition" (p. 106). But such a procedure begs the question of a single type and quality of human moral experience. Generic structures cannot be postulated. We have here a serious problem of the degree to which conscience-configurations vary culturally and historically, which Vivas does not even raise, much less discuss in the light of contemporary evidence.

Professor Vivas at times seems to suspect that his out-

come is not very different from the views he is attacking. For example, he damns the view that ultimate commitments are postulational for its "insularity and monadic impermeability" (p. 95) and its encouragement of dogmatism. But when he is attacking Dewey, he praises the firmness of the postulational theory (p. 117). His own conception of the moral person as defined in terms of dominant value-system is not far different. In fact he feels called on to distinguish it from cultural relativism (pp. 271-72) and to disclaim its inherently conservative character (p. 273). This he can do because the system of values constituting the person is not for him the final criterion (p. 274). But no sooner is this clear, than he finds it necessary to meet the charge that "it sounds like Deweyism" (p. 274). The fact is that Professor Vivas' successful criticisms are quite the kind that one naturalistic or materialistic theory may make of another — in terms of empirical phenomena and value stresses. They do not depend on his supervening ontology.

Professor Vivas on human nature. The issues concerning human nature illustrate this last point most clearly. Professor Vivas shares with the humanist tradition the central place given to the concept of human nature. He states explicitly that his "most serious objection to the interest theory of value consists in the myopic and oversimplified conception of the human personality on which it bases its analysis" (p. 48). R. B. Perry is criticized for lack of depth in his conception of interests and for their atomic character (pp. 51-53), and Dewey for the similar reason that his concept of human nature is "not scientific enough, that it does not envisage the full complexity of the human personality; that it needs to be enlarged to include factors, powers, and phenomena of the self that it ignores" (p. 113). All this is readily granted, and also that Professor Vivas' eloquent picture of the anguish of moral perplexity (*e. g.*, p. 179) is part of the supplementary material. Vivas himself uses Freud against Perry and Dewey. But what he goes on to deny is that an adequate scientific psychology will do the job (p. 113).

There is a fundamental vagueness in Professor Vivas' treatment of the role of science in relation to the task of moral

philosophy. The moral philosopher is said to seek "an accurate account of the structure and content of the moral life as *moral*" (p. 114). If this is a *descriptive* account, whether of content or process, there is no reason to regard it as a supra-scientific task. Phenomenological data now have an established place in non-behavioristic psychology, the social sciences today are not compelled to be reductionistic, and teleological concepts are found in scientific *descriptions* even though they are rejected as *explanations*. There is no longer reason to proclaim, whenever a neglected *phenomenon* is brought into view, that science *must* be incapable of dealing with it. Professor Vivas' use of science is impressionistic rather than systematic. He tends to feel that he has shown science inadequate when he has successfully criticized a single scientific example. And it is striking that he ignores completely the role that *historical knowledge*, with its accounts of the emergence, growth and shift of value-configurations, plays in a scientific approach to value phenomena.

Professor Vivas' philosophy of history. One would indeed have expected some fuller treatment of historical aspects of ethical theory. In fact, Professor Vivas begins by opposing "the present drift of historical events"; he goes so far as to say: "I would not for a minute pretend solidarity with men who do not realize that one of the essential marks of decency today is to be ashamed of being a man of the twentieth century" (p. x). But throughout the book one finds no systematic discussion of historical trends. Instead there is "the fundamental problem today, yesterday, and always" — "the need to stave off the snarling beasts of barbarism that are always and everywhere on the alert to get out of their inward cages into which culture drives them" (p. 132).

One reason for Professor Vivas' unhistorical approach is his view that "Cultural evolution is today, fortunately, long dead and decently buried, except among Marxists" (p. 76). This may be true for the Spencerian-type sociologies which Franz Boas cleared out of the way so decisively. But Professor Vivas seriously underestimates the persistence of the inquiry into historical change and development, and, for that matter,

the fundamental influence which Marxian historical analysis has had even on non-Marxian historical thought.

Professor Vivas' substitution of the metaphysical for the empirical. Professor Vivas takes values to have an ontic status and to be directly intuited. Sometimes this seems simply to distinguish between a quality existing and its discovery: for example, a tribe is hospitable and "this value does not depend on anyone's noticing it" (p. 63). Here the distinction is not clearly drawn between the objectivity of holding a value and the objectivity of the value itself. For the most part, it is a kind of "tertiary quality" belief, or an insistence on the autonomy of the phenomenological field. But since there is no analytic treatment in the book of the nature and status of phenomenological fields and their relation to causal conditions, the whole approach remains fundamentally vague. In some contexts, objectivity of values seems even offered as an explanatory hypothesis for empirical phenomena as against instincts or chance (*e.g.*, p. 73).

One cannot deny Professor Vivas the right to use the realistic language, since he can readily set up transformation formulae in a purely linguistic way to get out of subjectivistic or naturalistic modes of expression. But one has a right to insist that the language be not employed so as to impede or shut off further scientific study of a field. Two clear examples of this frustrating use of categories are seen in Professor Vivas' treatment of cultural relativity and his critique of the Freudian account of conscience.

Why is cultural relativity of values incorrect? One central reason is that "The anthropologist in his own professional capacity has no means of deciding whether the values that are such an important constituent factor of culture are discovered or created by the culture" (p. 32). The philosopher apparently has. But if the anthropologist were to answer that this was a historical question of diffusion or local origin, he would no doubt be said to misunderstand the question. Discovery and creation are apparently metaphysical, not cultural or historical categories. It is only fair to add that Professor Vivas goes on

to give more weighty arguments for cross-cultural criteria of evaluation.

In the second case, Professor Vivas starts out with what has all the appearance of being an empirical critique of the Freudian view that conscience arises through processes of identification and introjection. Freud himself recognized that the concept of identification of child with parents in the process of giving up love-objects in the resolution of the Oedipus situation involved as yet insufficiently explored mechanisms. Vivas presses such questions as: how precisely does repression become guilt, how does the non-moral become distinctively moral? He is not interested in scrutinizing psychoanalytic writings for their attempts to correlate qualitative changes in anxiety with specific developmental points and specific causal situations. Instead, he argues that the very notion of introjecting parental ideals means that the child "already possesses the capacity to discriminate between ideals and nonideals, which is to say, possesses the judicial power which is called 'conscience,' whose growth Freud is explaining" (p. 143). But he gradually shifts from offering an alternative "more plausible explanation of the phenomenon at hand" (p. 146) — which would be meeting the issue on an empirical level — to the view that Freud is not really giving us a genetic theory of our capacity to discriminate moral value but at most the genetic conditions which make such a capacity possible. Freud has thus been relegated to the merely empirical-genetic inquiry, and moral qualities can have their own distinct, unique, autonomous character. Yet this is an uneasy solution. For no contemporary naturalisms or materialisms are really interested in denying the distinct qualitative character of the moral level. They are non-reductive, and they mean by explanation simply the fullest *description* of any qualitative field in its own terms and the fullest empirical inquiry relating the qualities discovered to *causal developmental processes*. What began then as an empirical issue with Freud ends up as a metaphysical attack on the concept of *emergence*. It was not, in fact, a serious empirical discussion to begin with — no clear distinction was made, for example, between Freud's and Julian Huxley's posi-

tions, although the latter is based on a different mechanism proposed by the English school of psychoanalysis. The outcome of the argument is, in effect, an attempt to prove that even if an empirically satisfactory theory were worked out it would not "really" explain conscience. Such an argument is, however, much too sweeping. It is really doing no more than claiming that no scientific explanation of anything is possible because every quality is precisely what it is and not something else.

Professor Vivas' use of the concept of person. We turn finally to Professor Vivas' own conception of the sanctity of the person. Here I should like to develop the hypothesis he himself mentions but does not effectively dispose of (pp. 315-16), that his value of the person might be seen as one fundamental valuation within a moral scheme rather than as an ethical pivot overhauling the whole moral field. This becomes clearer as we look at the way the person concept actually functions in the book and the phenomena appealed to in substantiating it.

Chief among these phenomena are anxiety, radical perplexity, remorse: "If genuine ethical reflection is anything, it is, above all, burdened by perplexity, obsessed with the problem of its own validity, instinct with reflexive distrust of its deepest motivations" (p. 95). Vivas contrasts this attitude with that of the postulational moralist boasting of his insularity: "the voice of an alien moral plea cannot be heard from within it" (p. 96). Such a postulational morality can only shoot it out with the hardened criminal or the consistent Nazi. But if self-condemnation or remorse is a universal phenomenon, as Vivas supposes, then how can there be in fact the kind of hardened criminals just assumed ? If they are really hardened, Professor Vivas' theory is in the same boat as the postulational theory — there is no *universal* phenomenon of self-condemnation or remorse. We must not, therefore, pose the contrast as one of *theories*. It is rather the issue of desirable *virtues* — humility versus self-assertion. And obviously, a priori there is nothing to prevent a naturalistic ethics or a materialistic ethics from

recognizing the vices of dogmatism and arrogance or the virtues of mutual love, humility, and unqualified respect for the person.

Professor Vivas uses a double standard in denying the right to hold such values to any but his own ethics. For example, he tells us that "the instrumentalist cannot truly value individual integrity. His emphasis on change precludes it" (p. 119) and again: "One is loath to experiment with one's values, for one is loath to risk self-destruction" (p. 120). But Dewey's experimentalism in treating values as hypotheses is a mere retail affair compared to Vivas' wholesale rejection of the dominant values constitutive of the self by the naked self in crisis. And Vivas' use of "the espoused values of the other as person" to keep the moral process open (p. 312) is no different in specific moral effect from Dewey's recognition that claims arise naturally in all social relationships or, for that matter, Santayana's quite different treatment of charity in a naturalistic sense in his *Reason in Religion*. In such contexts I cannot again resist the feeling that Professor Vivas is not so much departing from some of the analyses he rejects as baptising them.

Beyond the use of the concept of person to establish certain values which are equally open to naturalistic and materialistic ethical theories, there is little more developed in the book. There is no careful analysis of the person with which one may really come to grips; emphasis falls rather on denying that it is a psychological category and on presenting the phenomena of remorse, anxiety and crisis. Most serious of all is the failure to follow up the startling thesis quoted above, that "when we repudiate our constitutive values altogether and forge an entirely new personality, a naked, empty self must do the choosing, and how this process is possible is not at all obvious" (pp. 230-31). The mere phenomenological quality of novelty is no ground for denying a dynamic process involving a struggle of forces internally. In the social analogue of a revolution, the replacement of an old regime by an absolutely new constitution is no ground for denying that a hitherto subordinate class has gradually consolidated its strength and made a thrust for state power. We are back again to the problems raised above con-

cerning the theory of emergence. And here again Professor Vivas seems to me to be engaging in the use of a metaphysical category in such a way as to shut off investigation. At this central point as well as in the work as a whole Professor Vivas, rather than clarifying the contemporary crisis, inclines rather to reflect its confusions.

ABRAHAM EDEL

The City College of New York.

The Review of Metaphysics, Vol. V, No. 3, March 1952.

TWO TYPES OF LINGUISTIC PHILOSOPHY

I

Of late philosophy has taken a linguistic turn. At least this is true of a large and, by general agreement, significant part of all philosophical activity that went on in the English speaking countries during the las tone or two generations. Also, it is true in a new and characteristic sense, beyond the commonplace that many classical philosophers, Hobbes, Locke, Berkeley, and not they alone, knowing both the splendor and the misery of words, taught the distinction between sound and sense, between the sign and what, if anything, it signifies. The causes of this linguistic turn or, if you please, the roots of the movement, as of all major movements of thought, are many, in part diffuse and anonymous as well as very complex. Yet the influence of three men, Moore, Russell, and Wittgenstein, stands out. Virtually all living linguistic philosophers are either directly or indirectly students of at least one of them. From this common origin two distinct types of linguistic philosophy have developed. There is, to be sure, much courtesy between the branches. Both sides can still talk with each other, as Western liberals can talk with Western conservatives, or as Englishmen and Americans can communicate, in a sense in which they cannot with some others. But there is also much strain and lack of mutual appreciation. Recently one editor even pronounced the great ban against the "other" branch, reading it out of the mother church of "philosophical analysis" and denying its practitioners their place in the succession of the masters.[1] It is difficult to find names for the two branches that are expressive of what is involved as well as acceptable to both or, for that matter, to one. So I shall use two tags that are rather colorless, speaking of the *formalists* on the one side and the *antiformalists* on the other. By way of preliminary

[1] *Philosophical Analysis* (ed. Max Black), Cornell University Press, 1950, p. 13.

identification I shall merely say that the formalists devote themselves to the construction of symbolic systems, so-called artificial languages, while the antiformalists are students of philosophically correct usage, probers and pruners of the language we speak. The formalists sometimes advocate the idea of an ideal language, a formalism to serve as a tool for the sort of reconstruction (*Aufbau*) Carnap attempted in *Der Logische Aufbau der Welt* (1928). The antiformalists were at one time also known as the Cambridge analysts, though now, that the movement has spread, one had better call it the British school of analysis.

The two books on which this study is based represent the two branches of linguistic philosophy. One an anthology, the other an original work, they differ also in kind. In *Logic and Language* [2] A.G.N. Flew has collected and ably prefaced nine essays by British analysts, the earliest of which, Ryle's "Systematically Misleading Expressions," appeared exactly twenty years ago. Nelson Goodman's *The Structure of Appearance* [3] is a new reconstruction; not to recognize its vigor and impressiveness would be most ungracious even if one rejects as radically as I do this particular *Aufbau*. Naturally, I shall say more about Goodman's book than about the essays. Yet I shall begin with the latter and say about Ryle's as much as about all the rest together. To justify this strategy I must put my own cards on the table, indicating where I stand on this controversy or near controversy between formalists and antiformalists. To my mind, then, it is gray against gray, not white against black. Both sides agree, and I agree with them, that there is no experience or, if you please, no experiment that decides what is presumably at issue between phenomenalists and realists. In this important sense, both sides agree, and I agree with them, that all philosophical problems are verbal. But in another equally important sense they are not verbal. This sense both formalists and antiformalists have lost or stand in danger of losing if what they do is no better than what they

---

[2] New York: Philosophical Library, 1951.

[3] Cambridge, Mass.: Harvard University Press, 1951.

say they do. Now for my reasons for singling out and starting off with the essay that marks Ryle's sober-eyed and reluctant conversion to the linguistic philosophy. It so happens that he there states very aptly a body of doctrine on which both sides could still agree and from which they in fact branched off at about the time the paper was first published. Also, the doubts and dissatisfactions to which he there confessed contain the starting points of the peculiar dialectics by which both formalists and antiformalists may be driven to extremes. Even better than that, I believe I can make use of these hesitancies to lend color to my own argument for a middle position which, as one is tempted to say on such occasions, does justice to both sides. That Ryle himself has in the meantime become a hero of the antiformalists is merely a piquant detail and does not deter me.

II

To begin with the common doctrine, consider two statements: "Satan is not real" and "Professor Ryle is not a formalist." If one trusts the *grammatical form* they share, one may be led to ask about reality and the prince of darkness questions which, though they may properly be asked and answered about formalism and the professor, make no sense and have no answers. Grammatical form or, rather, some grammatical forms are thus systematically misleading. This is not to say that the man on the street does not know what he means when he denies reality to the devil. Nor is he misled, for he does not ask the unusual and improper questions. (This is Ryle's acknowledgment of Moore's doctrine of common sense.) It is only philosophers who ask them because, whether they know it or not, they have made it their business to explore the implications of grammar. If they don't know it they end in perplexity, finding problems where there are none. To cure this perplexity all one has to do is to discover the *logical form* of statements. (In the case at hand the discovery was, of course, Russell's.) Then it appears that the improper questions cannot be asked. As far as the alleged problems are concerned, *cadit quæstio.* It follows that philosophy is verbal: bad philosophy in a bad

sense, good philosophy in a good sense. *All* good philosophy or *some*? This, twenty years ago, was Ryle's most gnawing doubt. He stayed his answer. Let me for a moment stay mine and turn first to another of his hesitancies.

The spoken word is infinitely subtle, its ambiguities beyond count. How, then, Ryle ponders, can we ever hope to be done and how, if we are, could we know it. In the next breath he reconsiders. Perhaps, "the number of prevalent and obsessing types [of systematically misleading expressions] is fairly small," so that our task has its measure. Here we stand at the branching-off point of the two lines. Some, taking their cue from the after-thought and following *Principia Mathematica*, conceived the idea of a universal schema which, if it were the grammar of our language, would by precluding the improper questions "dissolve" all known philosophical "puzzles" whose number, after all, is "fairly small." These, of course, are the formalists. Sometimes such a schema is called an *ideal language* though it is no more a language that can be spoken than the sketch or even the blueprint of a house can be lived in. This misunderstanding is as obvious as it is persistent. Nor are the formalists themselves quite innocent of it. Many of them are science worshippers; and in science, so-called axiomatization, which is not unlike the construction of a partial artificial language one could speak, is at times both possible and useful. So some formalists behaved as if they wanted to do something of the sort for the whole of English. Even worse, seduced by their scientism, they became slaves of their own creations, playing mathematical games for the sake of the game. Naturally, some of these games turn out to be philosophically irrelevant or even misleading. Against all this British common sense and the British analysts, who were relatively closer to the philosophical tradition, rebelled. There is still another reason for this rebellion. The ideal language rarely provides literal "translations," and often plays fast and hard with usage.[4] And had it not

[4] For this and other problems of reconstruction see W. V. Quine, "Two Dogmas of Empiricism," *Philosophical Review*, 60, 1951 and, in reply, my "Two Cornerstones of Empiricism," to appear in *The Analysis and Synthesis of Knowledge*, a new serial published by the American Academy of

just been discovered that all bad philosophy, the "speculation" which both sides so abhor, stems from liberties one takes with usage? There is, of course, a difference; but this difference the antiformalists do not understand. On another plane, the gentleman's dislike and distrust of everything technical also plays its part. Probably it is no accident that, Russell and Whitehead notwithstanding, the inspiration behind formalism is Continental. Be that as it may, the antiformalists sought salvation in ever greater literalness. So they became what I called them before, probers and pruners of the idiom, casuists ever ready to dissolve puzzles, to purify the usage for a limited purpose, but utterly unwilling to recognize the existence of philosophical problems. Also, just as the other side tends to get lost in irrelevant formalisms, so they spend themselves on puzzles that are often not relevant. Little wonder, then, that Ryle's original sagacious doubt was soon forgotten. For both extremes all philosophy is verbal. I do not believe that this is so. Yet I accept what I called the common doctrine. Let me explain.

Assume there is reason to believe that if the undefined descriptive predicates[5] of a certain formalism are interpreted as the names of such experienced characters as *green, later* and *toothachy*, the formalism can serve as an ideal language. I do not care at the moment whether this particular assumption is defensible; I merely use it to sketch, by commenting on it, a conception of linguistic philosophy which I, for one, am ready to defend. I shall offer four comments. *First*: If the assumption is justified, then that it is justified is a fact of our world. To grant that much one need not accept Wittgenstein's overliteral picture doctrine about which I am as sceptical as Ryle. Also, this fact or alleged fact is of a very special kind. To distinguish such facts from what we ordinarily call by that

---

Arts and Sciences in cooperation with the Institute for the Unity of Science. "Two Cornerstones of Empiricism" and the present study are companion pieces, not surprisingly in view of the affinities between Quine's and Goodman's ideas.

[5] 'Undefined descriptive predicate' is here a purely syntactical term. See below.

name is well worthwhile. I call them facts without further qualifications mainly *pour l'amour de la geste*, to make the point that not all philosophy is verbal; for philosophers, if they are philosophers, try either to defend or to refute such assumptions. *Second*: Our particular assumption is now also known as the linguistic version of phenomenalism. Though this name is easily misunderstood, it indicates rather aptly the sense in which the classical philosophers, in our case the phenomenalists, dealt not only with puzzles that must be dissolved but also with problems that can, perhaps, be solved. The peculiar facts I mentioned before are at the core of the classical problems. This core we can and must recover or, if you please, explicate. The puzzles and the absurdities that went with them we slough off by means of the linguistic method. For, clearly, it is one thing to assert our assumption and it is quite another thing to say such patent nonsense as that only sense data exist. *Third*: Whether the linguistic method is the only one that avoids nonsense is a further question. The case for an affirmative answer is rather technical. But it certainly seems to be a safe method and not at all as restrictive or iconoclastic as many of its proponents and opponents believe. *Fourth*: In constructing a formalism, in interpreting it, and in thus dissolving the puzzles and recovering the core of the problems, we speak ordinary English in the ordinary way that does not give rise to philosophical perplexity. This acknowledges what is sound in antiformalism. That complicated things cannot be stated in ordinary English is merely another side of the gentleman's prejudice against anything complicated. That we do construct a symbolism; that we construct it, as one says, syntactically; that we ask whether it could, in principle, serve as ideal language — all this acknowledges what is sound in formalism. This will have to do for a sketch of the conception of philosophy which informs this study. I conclude it by venturing the opinion that though it goes beyond what Ryle said twenty years ago, it contains nothing incompatible with what he then did say in that remarkable essay.

Next to Ryle's in excellence is, in my opinion, Miss Macdonald's essay, "The Philosopher's Use of Analogy," where in her own way she makes very much the same points. Only, the hesitations have disappeared; so the limitations become noticeable. Her paradigm is "substance" and the issue is disposed of, in the familiar way, as devoid of factual import. In one sense of "object" both subject and predicate of an English sentence refer to objects; in another sense of "object" this is not always the case. So far, so good. But assume that the ideal language is a subject-predicate schema with a zero level of subjects (particulars). Would this not be one of those peculiar facts I mentioned a moment ago? Would this fact not be the recoverable core of the traditional "problem" which, in this sense, is more than a verbal "puzzle"? Much of what Findlay says in his essay on time is well said; but casuism and the preoccupation with mere therapy, the cure of puzzlement, begin to obtrude. We are told, for instance, that if we wish we may safely say that the past exists as long as we remember that we have, perhaps, created a new usage of "exist"; for then we shall never be puzzled. Surely, this will not do. Two other essays, one on induction, one on verifiability, exemplify antiformalist futilitarianism at its worst. I, too, happen to believe that there is no problem of induction. Yet, if I may borrow a phrase from an august source, I am not amused when I am told for pages on end that this is so because, if one uses "reason" as it is ordinarily used in ordinary speech on such occasions, uniformity observed in a fair sample is an excellent reason to expect further uniformity. Again, reconstruction by definition (see footnote 4, above) does not stand finally revealed as a philosopher's folly merely because, though we may today use a term to refer to a certain cluster of traits, another trait of the objects exemplifying this cluster may strike us tomorrow, or because these objects may behave in unexpected ways. Nor is this essay improved by floating fragments of analyses which, though relevant in themselves, are irrelevant to its purported topic, verification. Such philosophical Earwickerism is oppressive. By contrast John Wisdom's piece on gods, which concludes the collection, is rather bracing, the way I find E. M.

Forster's novels bracing. Wisdom knows what it is like when the chips are down and we are faced, from within or from without, with evil and destruction. His attempt to say this or, rather, to make it show itself without saying it, in the unusual idiom of philosophical analysis, as Forster in his medium makes it show itself without saying it, is of considerable literary merit. Again I am struck by that correspondence and connection, to which attention is called in the late Lord Keynes' *Two Memoirs*, between Bloomsbury and British analysis, also, alas, in their lesser ranks and their less admirable traits. The shade, the nuance are everything indeed; and they are this by themselves, not because, as the romantics would have it, they give us the run-around by pointing at something else. Yet, to be this, they must be the shade and the nuance of something, of a world, of that world both Forster and Wisdom know. Lesser Bloomsbury has split the shade and lost the world. The latter day analysts still cure each other's puzzlements; only, they have nothing left that is worth puzzling about.

III

Goodman is a philosopher, not a formalist in the extreme and pejorative sense. He outlines a symbolism, interprets it, explains why he thinks it can serve as ideal language, and philosophizes by means of it. There is nothing in this to prevent him from taking his stand on the middle ground I chose between the two extremes. Thus I propose to take him at his best, or what I think is his best, ignoring the flavor of formalism that lingers here and there. But I shall feel freer to do so if I first note some of these flaws. He tends to exalt formal work and even formal detail at the expense of philosophical discourse. As a demand, in principle, for what I called a blueprint rather than a sketch this must be rejected; otherwise, the proper balance is a matter of taste and judgment. What Goodman does is, fortunately, better than what he has to say on this point. And he knows that he himself draws merely a sketch in some respects even sketchier than Carnap's which was his original inspiration. There is a second point on which I prefer

his taste to his argument. His reconstruction is in fact phenomenalistic; its descriptive primitives refer to characters exemplified in experience. Yet he disclaims all epistemological preference, insisting that a "realistic" formalism, whose descriptive primitives refer to characters of physical objects, would be equally significant and equally welcome to him. Each is said to solve certain problems, each worthwhile for its own sake. Worthwhile as a chess game is worthwhile, yes; otherwise, no. The only purpose of an ideal language or reconstruction is to solve all philosophical problems, simultaneously as it were, by means of the same formalism, for otherwise we don't know whether we have solved any. I happen to believe that to achieve this goal one must, as Goodman does, proceed phenomenalistically. But again, that is not my point. What I insist on is this criterion of philosophical significance. Partial formalizations can within limits answer some questions; for instance, a realistic "reconstruction," some that arise typically in connection with science. But to anchor any such clarification safely one must eventually plot the partial symbolism against the ideal language. (I speak rather vaguely of plotting in order to avoid technicalities.) A third stricture involves the "constructional" feature the ideal language shares with partial formalizations. In either case one starts from a minimum of syntactical primitives or undefined terms and constructs by means of them definitions or other circumlocutions for a maximum of others. The hope, not usually disappointed, is that the problems which revolve around the English word corresponding to a defined term can be solved by attending to the structure of the definition we have devised or, perhaps, to the fact that it can be devised at all. This minimization and maximization is not a quantitative affair. If, for instance, the answer to a certain question depends on the circumstance that all descriptive primitives refer to the given, then it makes obviously no difference for this question whether the reconstruction contains one such primitive, or a few, or even an indefinitely large number. Again, a familiar issue hinges on whether one can do without primitives that refer to characters. Now, a nominalist would not prove his case even if he succeeded, as we know he can't, in

defining all other universals in terms of similarity. One universal is as good or, if you feel that way, as bad as many. The significance, if any, of such economy is purely mathematical. Goodman, however, thinks that a reconstruction, to be worthy of the name, must make shift with a very small number of primitives, the smaller the better, and that these primitives should be as simple as we can make them, in a purely mathematical sense of simplicity which he takes pains to explain in a whole chapter. I know of no philosophical problem whose solution depends on such simplicity or such economy. The cues that mislead Goodman, as they misled Carnap, are taken from axiomatization in science. But these flaws do not affect the substance. Goodman, as I said before, is a philosopher. What, then, are the philosophical problems that haunt his dreams?

Goodman is primarily an ontologist; his main concern, in Quine's felicitous phrase, is with what there is. *The Structure of Appearance* is a strike for *nominalism*, a blow against the *existence of classes*. The words are old and familiar; the meanings he gives them are neither. To explain them will take me some time.

To the linguistic philosopher the symbols or, perhaps, certain kinds of symbols of the ideal language indicate what there is. What they name is what *exists*. On this we can all agree, if we do not probe too closely, as the proper method of recovering the core of traditional ontology. Up to now reconstructionists also agreed on two more specific points. We assumed that, relative details apart, the syntax of the ideal language was that of *Principia Mathematica*. And it was at least silently understood that the several signs of a syntactical category should be interpreted as referring to objects that belong, in the traditional sense of "ontological," to the same ontological category. Goodman is a radical innovator in both respects. To explain anything radically new is difficult, particularly if the explanation must be brief. I shall try to meet the difficulty in the following manner. First I shall describe, very selectively and most succinctly, what I can so describe since it is more familiar, namely, an ideal language of the

Principia type and, also, by means of it, my own more specific conception of ontology. This will provide me with the tools for both exposition and criticism of the most salient features of Goodman's system to which I shall, therefore, turn next. Finally, I shall attend to its constructional aspects, the choice of primitives, the definitions proposed, the controversial issues they involve.

Principia and related symbolisms distinguish between two kinds of signs, first among their primitives and then, derivatively, among other expressions. Called *logical* and *descriptive* the two kinds are, as everybody knows, exemplified by, say, "and" and "green." As such the distinction is purely syntactical, though even in syntax it is not trivial, as it would be if it were merely a matter of enumeration. But it is also of prime epistemological significance, because of the double burden it is made to bear in philosophical discourse about the interpreted symbolism. For one, there is a clearly felt difference between "and" and "green" in that the latter designates something in a sense in which the former does not. One is tempted to say, and it has been said, that while the latter names a feature of the world, the former, not naming anything, is merely a piece of linguistic machinery we need to speak about the world. I think I know as well as the next man that these aphorisms do not stand up under dialectical probing. But then, the task is to explicate such felt differences in a manner that is tenable. That is part of what I mean by solving the classical problems. So we note here a suggestion for a distinction within ontology. Second, the two dichotomies logical-descriptive and *analytic-synthetic* are in syntax inextricably bound up with each other. Untenably but suggestively, analytic and synthetic truths have been called linguistic and factual respectively. What we thought was and I still think is the ideal language allows for an explication of the intended distinction.[6] But one may disagree on whether any such explication offered is tenable as well as satisfactory and yet agree that the distinction itself

---

[6] See my "Logical Atomism, Elementarism, and the Analysis of Value," *Philosophical Studies*, 2, 1951.

must be recovered. On this all reconstructionists were up to now agreed. Indeed, they thought the distinction of strategic importance.

The simple clause is analyzed into subject and predicate or, in the case of relations, subjects and (relational) predicate. The respective syntactical schemata, "$\phi(\alpha)$" and, for a binary relation, "$\rho(\alpha,\beta)$," may be approximately transliterated by "an entity has (exemplifies) a property" and "two entities stand in (exemplify) a relation." But this is not all there is to it. Consider the two sentences "Henry is green" and "green is a color," "Henry" being the proper name of, say, a sense datum. These two sentences are not taken to exemplify the same syntactical schema, "$\phi(\alpha)$," but two different ones, say, "$f(x)$" and "$F(f)$." This is, of course, the heart of the classical theory of types. Descriptive terms or, as one also says, descriptive constants divide not just into the two syntactical categories of subject and predicate but into a whole hierarchy, particulars, predicates, predicates of predicates, and so on. The same holds for the corresponding *variables*, "x," "f," "F," etc., which serve the same function as, in idiomatic language, such words as "thing," "object," "individual," "property." Variables are technically logical primitives, plausibly enough, if one considers that "individual" and "property" do not name anything in the sense in which both "Henry" and "green" do. Or, if you please, they refer not to any particular content of the world but, rather, to structural features of it, in the sense in which, vaguely though suggestively, analytical truths are called structural, or syntactical, or linguistic. Together with some logical constants the variables express quantification, "for all" and "for some." Quantification is thus logical, which is again as it ought to be, for allness and someness do not belong to the furniture of the world in the same way as greenness and cathood. The "felt difference" is, to me, undeniable.

Now for *ontology*. In the broadest sense of "fact" it is undoubtedly a fact that a certain syntactical machinery is needed to speak about the world. That the ideal language contains certain syntactical categories, for instance, the several types represented by the several kinds of quantifiable variables

is thus, in the broadest sense of "ontology," an ontological statement. But there is again a clear-cut difference between what this statement expresses and what, if there were such a thing, a list of all descriptive terms needed would express. To speak about the world we certainly need both the syntax and the list. But the accent, as it were, is in the one case on speaking, in the other it is on the world. Only the second question exemplifies, therefore, what I properly mean by ontology and, incidentally, what I believe the classical philosophers meant. The example, however, the demand for a list of all descriptive terms, though the most obvious one, is not a good ontological question. Every philosopher must claim that he can say everything. So there could be no difference on this formulation of the issue between any two ontologies. A phenomenalist, for instance, must maintain that he may use the predicate "physical object"; what distinguishes him is that he proposes to define it in terms of primitives which refer to quite a different kind of entities. Or, to choose a noncontroversial case, if "green" and "square" are among the primitive predicates, then the logical apparatus alone permits us to form the predicate exemplified by what is both green and square. I conclude that, *as to syntax,* the ontological problem is to determine the descriptive primitives. And even this is not a demand for a list but, rather, for the kind of syntactical categories, particulars, predicates, and so on, to which they belong. *As to interpretation,* which we remember takes place in ordinary discourse about the symbolism, the question is what kinds of entities the primitives name.

Two matters sometimes mistaken for ontological or, if you please, *two bad ontological questions* require a moment's attention. The first stems from an insufficient appreciation of the difference between the ideal symbolism and ordinary English. Philosophical statements as to what there is belong to the latter. Mentioned but not used in philosophical discourse, where they belong to our explicanda, they have no counterpart in the ideal language. Yet some philosophers believe that while the occurrence of a predicate in the ideal language does not commit us to the "existence of properties," we are so committed if the ideal

language contains quantified predicate variables, because in this case we can by means of the "existential" quantifier in the ideal language say "there is a property such that . . . ." What there is becomes then the question as to what quantified variables, or sometimes even what variables, occur in the ideal language. This makes no sense to me. Who admits a single primitive predicate admits properties among the building stones of his world. But we shall not be surprised to find this conception of ontology accompanied by the rejection of the distinction logical-descriptive. For, if one does not recognize the epistemological significance of this dichotomy, then the variables and the constants of a syntactical category designate equally, as it were.[7] The second bad question confuses ontology and science. There is a sense in which it makes sense to say that all there is are electrons and nuclei, distinguished from each other by relatively few properties and standing in spatio-temporal relations to each other. Twenty-five years ago this was indeed the best scientific information available. All it tells is what the descriptive primitives of an axiomatization of the science of the day may be. Even if it includes behavior science, such an axiomatization is obviously not the ideal language. Nor is it difficult to imagine what may result if the suggestions from these two mistaken conceptions of ontology combine: the idea of an ideal language that contains only particular descriptive constants, the corresponding variables with their quantifiers, a few primitive predicates of the first type, and no other variable. I add that when I speak here and later of such suggestions and of intellectual motives I do not intend to make either biographical or historical assertions. My concern is only with the structural analysis and interdependence of philosophical ideas.

The current meaning of "nominalism" is that of the British tradition. As to syntax, these nominalists did not, I take it, intend to restrict the logical machinery of variables and quantifiers but, rather, to limit the descriptive primitives to particulars.

---

[7] See also my "A Note on Ontology," *Philosophical Studies*, 1, 1950 and, in reply, W. V. Quine, "Ontology and Ideology," *Ibid.*, 2, 1951.

As it is often put, they construed characters as the classes of individuals exemplifying them. As to interpretation, they made their particulars name sensa, the sort of thing named by the subjects of sense data statements. This is their phenomenalism, which need not detain us. With respect to "individual," it is customary to call the referents of particulars *individuals*, the variables associated with them *individual variables*. Two intellectual motives for a nominalistic ontology deserve attention. One, subtler and perhaps also more remote, is the desire to avoid predication or, speaking nonsyntactically, exemplification, the puzzle of the One and the Many. As far as it is possible, this purpose is realized by avoiding primitive predicates. The other motive is to deny the "existence" of entities that are *abstract* and not *concrete* in that they are not in space and time or, at least, in time. Non-literally and after a fashion, we all understand what that means. Literally, I do not. Literally, a visual spot is no more *in* space than it is *in* a hue or a tone is *in* a pitch. Sensa exemplify spatial and temporal characters just as they exemplify hues and pitches. What goes for sensa goes *mutatis mutandis* for physical objects and events. This dissolves, and I use the strong term deliberately, the philosophical puzzles relevant for this study among those that revolve around individuality, concreteness, and abstractness. In the sense intended they have no core that needs to be recovered. The confusion they cause is structurally not unrelated to that between ontology and the scientist's search for his building stones. To venture one historical remark, they may even have a common root in the Democritean philosophy.

Now for the *existence of classes*. "Class" is not as innocent a word as "property." The usual explications such as pointing at apples in a basket won't do, for there we avail ourselves of the shared character of being in the basket. One can, however, in this case, define a predicate of a peculiar kind. Assume, for the sake of the argument, that apples are individuals and that those in my basket, certainly a finite number, are called "John," "James," "Richard," and so on. The predicate is then defined as being identical either with John or with James or with Richard, and so on. Its peculiarity

can be stated in two ways. First, it contains no descriptive signs but the names, in particular no descriptive predicate. Second, one can build it by means of the logical apparatus alone whenever one is in possession of the names. Consider, next, that if we so choose we can also mention together, put into a linguistic basket as it were, Napoleon, the moon, and Olaf, my late lamented cat. Yet there is no predicate except such peculiar ones whose extension these three are. For, to be mentioned together is of course not, in a relevant sense, a property of the objects mentioned. This, I believe, is the core of the thesis that classes do not exist. The peculiarity of certain predicates, stated as I just stated it, is its complete explication. Russell's introduction of class signs as so-called incomplete symbols is nothing but a device for defining such "peculiar" predicates in cases where we cannot enumerate their extensions. "Extension" itself is but another vague word whose explication is implicit in these remarks. Another point is more important. If one believes, as I do, that the ideal language has a certain property known as extensionality,[8] then class and property symbols can be identified with each other, in a certain technical sense which I cannot stop to explain, and so can the corresponding variables. This may become the source of another bad suggestion. One may think that to deny the existence of classes one must exclude all predicate variables from the ideal language.

I am ready to state Goodman's thesis. He limits the logical apparatus of the ideal language to the lower functional calculus without predicate variables and therefore, of course, without predicate quantification. His primitives, beside that of sentential logic, are individual variables with their quantifiers, particulars, and a few predicates of the first type. This gives us immediately two reasons why he is not a nominalist in the current sense of the term. First, he restricts, unlike the nominalists, the logical apparatus. Second, he does not avoid primitive predicates or, if you please, the problem of the One

[8] Some peculiarities of its semantic part do not, in my opinion, substantially affect the extensionality of the ideal language. Goodman does not commit himself on this point. But he, too, clearly favors extensionality.

and the Many. Third, we shall presently see that some of his undefined particulars refer to such characters as "green" and "hot." His is thus a purely logical thesis. This is not to say that it is not significant; it is even an ontological thesis, though only in the broader sense. I, for one, do not think that it is tenable. But criticism must wait until I am done with exposition. Olaf is an individual; so is one of his whiskers, one of my memory images of him, any character exemplified in any of these images, and, moving upward as it were, cathood. For the corresponding terms are all particulars. How, then, does he manage to say "Olaf is a cat" ? He introduces a primitive predicate which he transliterates by "overlapping" and interprets by saying that any two individuals that have a "content" in common, such as two tones exemplifying the same pitch, do overlap. In terms of "overlapping" he defines several such predicates as "is a part of." Then he transcribes "Olaf is a cat" by "Olaf is a part of cat." [9]

The possibility, however theoretical, of several ideal languages which are not merely rather obvious transforms of each other must be allowed.[10] On what grounds, then, can one reconstructionist criticize another, reject a symbolism as unsuited for the office of ideal language ? There are three kinds of such grounds or reasons. I shall list them in ascending order of cogency and then arrange my criticisms of Goodman in the same order. First, one may hold that the problems the proposed symbolism is designed to solve — with the claim, implicit or explicit, that there is no other way of solving them — are either no problems or can be solved otherwise. Second, one may show that some real problems cannot be dealt with by means of the new symbolism. Arguments of these two kinds question the *adequacy* of the symbolism as a tool of analysis by means of philosophical discourse *about* it. The third kind challenges its *completeness*, pointing out that it cannot serve as ideal lan-

---

[9] A calculus of individuals was first published by Lesniewski as an axiomatization, without restriction of the logical apparatus, of the part-whole relationship.

[10] See my "Two Criteria for an Ideal Language," *Philosophy of Science*, 16, 1949.

guage because certain ordinary statements have no counterpart *in* it, are untranslatable, as it were.

Goodman finds the "existence" of anything but "individuals" unintelligible. Syntactically, he cures his puzzlement by admitting into his symbolism only individual variables. When it comes to interpretation he pays the price. We have seen that, if I may speak with some looseness, virtually everything is for him an individual. I have no quarrel with his terminological idiosyncrasy; I merely observe that under the circumstances "individual" means virtually nothing. Moreover, I believe to have shown or at least hinted by what was said before I even mentioned Goodman's ideas that the puzzlement caused by abstract [11] entities can be dissolved and the problems revolving around them solved without that mutilation of the logical machinery which is the heart of his peculiar brand of nominalism. *Structurally*, the mistaken belief to the contrary is connected with what I have called the two bad ontological questions; with the bad suggestion that may be derived from the puzzle of the existence of classes; and with the confusions about individuality, concreteness, and abstractness I mentioned among the intellectual motives of what we ordinarily call nominalism. But, to repeat, I do not presume to write anybody's intellectual biography. The philosophical discourse by which Goodman supports his thesis I find unconvincing and often confusing. It jars me to read that physical objects and classes of such are events after all. Like "individual," "event" is apparently a good word. Events, I take it, are concrete[11] and intelligible. I understand only one meaning of "event." A physical event, say, is what happens to or among physical objects and is, relative to the scale the discourse implies, of rather limited duration. Any other meaning and, in particular, its significance for philosophical analysis I would have to be shown.

Goodman explicitly rejects the dichotomies logical-descriptive and analytic-synthetic as devoid of epistemological significance. For him there is nothing there to be explicated. I

---

[11] I use this term and some others as they are ordinarily used, not with the special meanings Goodman provides for them.

disagree. But Goodman's opinion occurs only as an incidental remark. So it could be that though he himself would not care to do it, these distinctions and what depends on them could be recovered in his system. I shall show in two cases that this is not so. *First*: The proposed symbolism does, of course, contain a fragment of logic. With respect to this fragment the distinctions can be made. But if they are made, in the only manner of which I know, then "overlapping," "being a part of," and so on, become descriptive predicates. Thus the syntactical distinction between "Olaf is a cat" and "Romeo loves Juliet" disappears. Non-syntactically speaking, no difference is left between such relationships as loving and the "relation" between two entities one of which exemplifies the other. Yet the latter is what the scholastics called *secundæ intentionis*. The felt difference is to me undeniable. In the *Principia* language exemplification appears, accordingly, not as a relation but as predication, expressed by such structural devices as juxtaposition. If it is forced into the symbolism itself then it becomes, as one would expect, a defined nondescriptive relation. Besides, Goodman, since he admits primitive predicate symbols, also has exemplification and predication to deal with. Plato was the first, Bradley perhaps not the last who paid the price for neglecting these points. *Second*: Where we speak of the class consisting of the individuals Peter and Paul, Goodman speaks of the individual which is their sum and constructs its name as a descriptive function. But in order to insure the existence of this sum, that is, the availability of the symbol that names it, he must introduce a postulate that turns out to be synthetic, at least within the fragment of logic he admits. Put in the usual manner which, though it is not as precise as one can make it, is very suggestive, that amounts to this. Even if we know the names of all the members of a class, it is still a fact in the narrower sense, not just a feature of the linguistic machinery, that we can speak about the class. The class puzzle or, rather, a sort of converse of it has come home to roost.

The next criticism is, perhaps, the most difficult to answer. Some efforts to the contrary notwithstanding, it seems extremely unlikely that one could ever with a logical apparatus so

severely restricted reconstruct those parts of arithmetic which are now based on predicate quantification. The philosophical analyst's duty toward these lovely growths is that of the tree surgeon, not that of the lumberjack. Goodman himself is fully aware of this defect of his symbolism. Yet there is a distinct finitist flavor in what he says about arithmetic, in the sense in which finitism was an issue when Brouwer's idea first created a stir. The point seems to be that since we are acquainted with but a finite number of individuals, our arithmetic, if we want to be empirical about it, had better be finitistic. I should like to use this opportunity to unburden myself of a remark that has long been on my mind. The reconstruction of arithmetic rests to a considerable extent on the analytic truth Russell called the axiom of infinity. But one may doubt whether there is an infinite number of individuals in the world. Thus the foundations of arithmetic are sometimes thought to be dubious to this extent. All this seems utterly wrongheaded to me. The truths of arithmetic do not depend on whether there is enough chalk in the world to write them down. Nor does one need to be a technical expert in the foundations of mathematics (I certainly am not) to know that if quantified predicate variables are used the critical axiom can be written down within the ideal language with a very moderate amount of chalk. And these variables with their operators, being logical signs, do not designate anything. Thus the dichotomy Goodman rejects once again achieves an important clarification.

I turn now briefly to the constructional side of the system. The names of sense qualities are among its primitive particulars; the names of the sensa which exemplify these qualities Goodman proposes to construct. He begins by introducing a further primitive relation, togetherness, which turns out to be coexemplification. Two qualities, say, a pitch and a loudness, are together if and only if there is a tone of both this pitch and this loudness. (We meet here another logical relation in descriptive disguise.) The properties with which togetherness is axiomatically endowed circumvent very cleverly certain diffi-

culties that were the downfall of Carnap's *Aufbau*.[12] Even so, Goodman must, in order to achieve his goal, introduce some very peculiar primitives, namely, places in space and time. A sensum then becomes, roughly speaking, the togetherness of what we ordinarily call its qualities with the two qualities of being a certain duration and a certain place, or at a certain place. I hardly know how to put it. Here I can only say what Goodman says about "classes," that this is completely unintelligible to me. I am not acquainted with such qualities; so I cannot as an empiricist admit their names among the primitives of the ideal language. Or, as Locke would have said, with such a one I cannot talk. To be in the center of my visual field is no more a character of the spot that happens to be there than its being mentioned by me or, for that matter, its being perceived by me.[13] Goodman might have indicated that in certain chapters of *An Inquiry into Meaning and Truth* Russell tried very much the same thing with very much the same means.[14] Russell's purpose in doing this was to solve the puzzles and problems of substance and of the solipsistic suggestion of a phenomenalistic reconstruction. These must and can be solved by other means. What he and Goodman would have solved, if their constructions were otherwise admissible, is the puzzle of particularity, which hinges on the occurrence of descriptive primitives which are, as Peirce would have said, purely indexical. But then, the inadmissible qualities they introduce are nothing but indices put up in the world, as it were, in the disguise of characters.

There are further constructions which fill a goodly portion of the book. Their cleverness will, I am sure, delight the

---

[12] Goodman devotes a whole chapter to a very lucid exposition and critique of Carnap's *Aufbau*. Brilliant as this chapter is, it contains nothing that would surprise any serious student of Carnap or, for that matter, Carnap himself.

[13] Moore's classical critique of *esse est percipi* comes to mind at this point. Empiricists are in danger of committing this sort of error again and again as long as they do not recognize the irreducibility of the act. See my "A Positivistic Metaphysics of Consciousness," *Mind*, 54, 1945.

[14] For criticism see my "Russell on Particulars," *Philosophical Review*, 56, 1947.

formalists. But this is hardly the place to say anything about them.

It must be clear by now that to my mind, as far as philosophical significance is concerned, Goodman's results are not commensurate with his labors. In this respect *The Structure of Appearance* belongs with the more extreme productions of formalism. But such, alas, is the nature of philosophy that this opinion is not incompatible with the one I expressed at the beginning, that the book is impressive and in many ways admirable. There is a wealth of details some of which strike me as ingenious or even profound. Also, the author has a style of his own and often finds *le mot juste*. What he says is not always clear to me, but it is always clear what he says. These are rare virtues. More important still, he deals earnestly and singlemindedly with fundamental issues and only with fundamental issues. So he addresses himself, like Stendhal, to the happy few.

GUSTAV BERGMANN

State University of Iowa.

The Review of Metaphysics, Vol. V, No. 3, March 1952.

THE MIND OF LITT *

The author of *Mensch und Welt*,[1] who reached his seventieth birthday on December 27, 1950, and who is at present Professor of Philosophy at the University of Bonn, has occupied an outstanding place in German cultural life for thirty years. From 1920 to 1947 he was a professor at the University of Leipzig, with an interruption from 1937 to 1945. During this period of time he was retired at his own request, since he took an unmistakably disapproving position toward National Socialism and the bases of its *Weltanschauung*, particularly its racial theory.

Litt has developed his philosophic and pedagogic theories in numerous books, a lifework which, in breadth and depth of vision, in fullness of thought, in clarity and logical precision, combined with the highest stylistic mastery, is scarcely to be equalled. A few of his most important works can be mentioned here: *Individuum und Gemeinschaft* (3rd. ed., 1926), *Ethik der Neuzeit* (1927), *Kant und Herder als Deuter der geistigen Welt* (2nd. ed., 1949), *Denken und Sein* (1948), *Wege und Irrwege geschichtliche Denkens* (1948), *Einleitung in die Philosophie* (2nd. ed., 1949).

The work here reviewed, *Mensch und Welt*, which was completed in 1939 but could not be published during the Nazi dictatorship, occupies a central place in the output of this German philosopher, since it embraces in a systematic fashion the results of his researches and the full scope of philosophic problems. This book is a self-contained whole. It does not presume a study of the author's other works, although that naturally aids in the understanding of it. For the book is not easy to understand despite its clarity of style and the irrefutable correctness of its deductions. It demands of the reader no historical knowledge or acquaintance with the special sciences,

---

* Translated by James C. Haden.

1 Theodor Litt: *Mensch und Welt — Grundlinien einer Philosophie des Geistes*. Munich: Ernst Reinhard, 1948. 336 pp.

but rather the highest intellectual concentration. The difficulties arise from the subject matter itself, and chiefly from the following grounds:

1. The author is never content with superficial or obvious solutions. He penetrates to the heart of every problem and traces out its finest ramifications. This means that the very subtlest investigations are unavoidable.

2. Litt's philosophy requires the overcoming of commonsense habits of thought as well as those of the natural sciences.

3. Litt's method is throughout indirect. His own theory is developed by passing through others. The truth is not brought out directly but unfolds gradually in the refutation of positions which are false or only relatively correct.

4. Hence it follows that the stages which have been traversed belong to the total structure. Truth does not permit itself to be comprehended by and conveyed in detached abstract results. Only the *whole* exhibits what is true. The paths are not to be separated from the goal.

5. This demands that the reader, in order to understand the particular correctly, always keep the whole before him. Cognitions are apart from simple *communication* and *appropriation;* they demand that one immerse himself fully in the movement of thought and thereby fulfill himself through the thoughts. Apart from this living movement of thought which embraces the whole, conclusions petrify into empty formulas and soulless abstractions.

These obstacles to understanding arise in the attempt to analyze the work in a brief compass. One can only work out the distinctive point of view, and grasp the main direction of the inquiry. All secondary issues must be renounced, although strictly speaking they are a part of the proper understanding of the central issue, and also all critical comparisons of the author with contemporary thinkers (e.g., with Heidegger, Jaspers, N. Hartmann, Gehlen), although by this course his own philosophy achieves especial clarity.

I

The Distinctive Point of View

The title *Man and World* might lead one to see the work as only one more on *philosophical anthropology* which are currently so numerous. In fact it does treat of a sort of philosophical anthropology, but also of *more*. This is revealed by the subtitle: *Foundations of a Philosophy of Mind*. The basic concept of the system is that of *Mind*. The latter includes the concept of *man* — not the reverse! The concept of man is too narrow and is too easily given mere biological or psychological interpretations to form the basis of the system.

What is *Mind?* Here there arises precisely one of the above-indicated difficulties. Basic philosophical concepts cannot be defined, but have their meaning only in the light of the whole. Something to guide proper understanding of the concept has already been established negatively. Mind is no quality, no attribute of man; it is no endowment of a particular species of living being called man. Every empirical or psychological interpretation of the concept Mind falsifies its understanding and is rejected by Litt. Mind is no *fragment of reality* because it is what makes possible the comprehension of so-called reality (including man) in general. Mind is not something which *adds* something to a world which as such is antecedent to it. This common and erroneous notion Litt illustrates by the following example: Mind is regarded as a lamp, which customarily illuminates things (the world), but at bottom does not change the world as it is *in itself* and contributes nothing to it. Man is then usually looked on as a thing in the world with the especial characteristic of illuminating himself and other things. One might therefore remove Mind from the world without any alteration in the essence of the world; it merely would, so to speak, lie in darkness and man would be improverished to the extent of one faculty. Litt designates this sort of view as the "method of substraction," i.e., Mind (or man as mental being) can be subtracted from the whole without changing its structure. But in this view the essence of Mind (and hence the essence of man as well) is lost. The error in this mode of thought lies in the rending asunder of Mind and world and setting them up

in opposition like two spatially separated factions. The spatial world, as it appears in naive thought as the world of things or in a form refined by natural science as a universal causal nexus, then becomes the antithesis of Mind. On this view, what becomes of man? He is resolved on the one hand (as a corporeal being) into a thing among things, on the other hand (as a mental being) into an isolated consciousness which has the world "*external* to itself," to which the world "merely appears." If one falls prey to this sophistical, spatially fettered idea, there are three ways of solving the problem:

1. One can try to derive mind from the world; man becomes the product of a natural development (naturalism, materialism);

2. One can try to derive the world from mind; everything is deduced from thinking, from pure consciousness (idealism, subjectivism);

3. One can try to construct a co-existence of mind and world, in which man is divided into body and soul or mind (dualism, parallelism).

Litt points out the insufficiency of these ways and their ineradicable contradictions, and reveals the error in the fundamental conception. It consists in the initial abstraction of Mind from the structure of the world and in opposing one to the other. In doing so it is overlooked that what is put in opposition to Mind, the so-called "objective reality," originally acquires its determinate form only through the action of Mind, and above all of objectifying Mind. One may not start from separation and opposition, one must rather proceed from the *unity* which precedes this separation and opposition. This unity Litt calls the "Ego-World Unity." From this ego-world unity as it is immediately experienced, there is created, through the agency of Mind, the *objective world* and at the same time the *ego* correlative to it. That which forms the central point of the horizon on which the objective world arises, Mind, can conversely itself be no part of this horizon. Every evolutionist derivation of Mind is disproved by Litt with irrefutable logical precision. Here are fixed the immovable limits of the natural scientific view of man as well. It is thoroughly legitimate to want to understand man by the methods of physiology, anthropology,

psychology, etc., to regard him and to investigate him as a natural being, as a *fragment of reality*. But the core, the peculiar essence of man, namely Mind, can *not* be comprehended thereby. It is just that which makes possible these observations and investigations. To desire to derive or explain Mind from what is not Mind resembles an attempt to leap over one's own shadow or to pull oneself from a swamp by the hair of one's head. Evolutionism always involves the same intellectual error: "The actual, as it was before there was man, is thought as it would have presented itself, in the form of 'Nature,' to man *had he been there already*" (p. 157). For Litt, as it is for Hegel, Mind is "*the all-inclusive*" (*der Übergreifende*). It includes the Other (Nature), but is not included in Nature. For that reason Mind cannot be understood in terms of Nature. Mind and Nature form a unity which divides into a duality only through the agency of Mind. Since Mind reflects upon itself and becomes aware of its own essence and activity, it recognizes that a *dialectic unity* is involved, a unity in duality (interconnection of the diverse and diversity of the interconnected).

II

The Main Course of the Investigation

Litt develops this universal concept of Mind gradually in the course of his book. It is here taken up first, however, because only in this way is a recapitulation of the central idea and the working out of the most important categories possible. Litt begins his inquiry with the question of the completeness of man. In answering this question he differentiates *Christian anthropology* from *philosophical* (*secular*) *anthropology*, both of which he characterizes in the introduction. Christian anthropology sees man as *incomplete*, imperfect, in the radical sense, as the epitome of the limitation of the created and in need of divine grace. Secular anthropology, on the other hand, sees man as *complete*, as the epitome of creative freedom perfecting itself through its own power.

In Chapter I Litt develops that aspect of human existence which seems to vouch for its completeness and self-sufficiency. Man is a *person;* as such he seems to be a *microcosm*, a "*monad*

rotating about itself." Nature is on this view only the material and the arena for his free, creative activity. But a piercing investigation shows that this concept of completeness, of self-sufficiency, is untenable (Chaps. II - V), that man is bound to his human fellows and to extra-human Nature alike by a relationship which excludes autonomy and reveals his incompleteness. Man is man, Litt thus points out, only in working out an adjustment with the actual universe which ineluctably surrounds him. It is not that man and world are equally original factors which later enter into a relation, but only in existing together with and for one another are both factors what they are. Man absolutely requires the *Thou* to become an *I*. The isolated man who preserves his autonomy remains on the level of the beast. *Response* is one of Litt's basic categories. "To become 'oneself' is given only to a being which can say 'I' to itself. Knowledge of its ego can be had only by a being which has responded to the *Thou*. I-experience and Thou-experience are bound together by the strongest mutual relation" (p. 32). Something corresponding is the case in the relationship of man to extra-human Nature, to the *world*. The *object* arises because the subject does, and conversely. The world only becomes the world in the sense of objectively given being, because man in knowing and acting adjusts to the *immediate*, the *impression*. Here too is a relationship with the highest mutuality. "There is no individuation without the opposition of the Other" (p. 55). Litt explains this in the difference between animal and human response to the world. The animal has no *world*, but only an *environment*, in which it is so completely embedded by its instincts that it cannot be divorced from it. It has only an experiential relation to Nature; it has no world. Only man has, or, better yet, molds a world, since the experiential relation is overarched, through knowledge, with an intellectual relation. Immediate experience (impression) is destroyed by knowledge, but raised to another plane. From the impression arises the object.

Knowledge is, so to speak, the exemplar for human relationships with the world in general. For man the *sensuous* (*Sinnliche*) is always joined with a *sense*. The sensuous and the sensible (*Sinnhafte*) do not fit together like two layers

(Litt rejects every correspondence theory), but constitute a dialectic unity. Litt demonstrates this impressively in the essence of *language*. In language there is temporal and atemporal, concrete sound and abstract meaning, particular and universal, so interconnected that all separation and differentiation do not dissolve the underlying unity, but confirm it. Even the most abstract mathematical symbols and formulas of the natural sciences require a connection with the concrete. There is no world of sense on the other side of and separated from the experience of the immediate. Sense exists only *in sensing*. The universal lives only in the particular, the essence only in the appearance, transcendence only in immanence. Precisely on this account man becomes man only in surrendering to and in adjusting to Nature. *Culture* arises only in the process of disclosing and working with Nature. Or expressed quite generally: *"Mind first becomes Mind in traversing the world"* (p. 203). Mind without the world is empty promise and unfulfilled potentiality. It exists only, as Litt says in support of Hegel, mediately by way of the world. It follows from this that man possesses no autonomy; he is dependent on the world. "The essence of man is to be open to the world" (p. 97). The claim of man to completeness must be denied in every respect and on every plane. Man and man, man and Nature, man and society — everything arises and endures together with one another and for one another (which also includes tension and enmity!), not as unrelatedly adjacent. "Thus each is here bound fast to each, mediately or immediately, in becoming and in being. Nothing finds its consummation in itself alone; everything reaches out beyond itself" (p. 96).

This is the basis of the *ambiguity* of human existence which Litt elicits and illumines as keenly as possible in all its ramifications. In Chaps. VI-VIII it is shown that man in his relationships with his fellow human beings as well as in his relationships to extra-human Nature is exposed to the inner threats that lie in the ambiguity of his essence. Man is on one side a *self*, an *ego*. On the other side he is *devoid of completeness* in every way, is *dependent on the Other* in every form. From this grow all the *perils* and the *tragedy* of his existence. The instability of the texture of life is shown especially in the

relationship of man to his fellows. Man becomes man in general and this particular man in his response to the Thou which shapes his essence. But this very becoming of self means that the individual freely opposes his fellows, that he becomes a willing and acting person; thus there results an infinitely rich scale of human relationships. It extends from the positive limit of redeeming love through the neutral zone of cool impartiality to hatred consummated by the fever of the will to destruction. The negative limit is indissolubly linked with the positive one. "He alone can climb who also can fall" (p. 103). Freedom is *not* to be divorced from the dark background of failure, of sin, of abuse. It is the privilege of Mind to be capable of becoming evil. Once again *language* makes the point especially clear. Through language man becomes man and the world is disclosed. But language is at the same time the arch-seductress. In it "anything and everything can be said; it can also without exception be said in a form which takes one a prisoner without a struggle" (p. 106). Language is therefore the instrument forged for evil, falsehood, and above all, self-deception.

What is true of language is all the more true of objective Mind or culture. Here too blessing and curse are inseparable, the danger of *reversion to the negative* is not to be banished. The relationship of man with man is mirrored in the relationship of society with society, except that here the ambiguous and menacing, unchained by what is demoniac in human passions, waxes into something gigantic and earth-shaking. That which alienates men grows, aggravated through the medium of language, to collective will toward hate and destruction, which makes its appeal to physical power. "*War* is and forever will be the symbol and memorial of everything human, because it brings to light the utmost of his potentialities with unsparing honesty and crushing severity. A being from whose purview war cannot be banished must have mastered the art of self-deception to the point of virtuosity, in order to be able to deceive himself concerning the dubiousness of his situation" (p. 111).

This ambivalence extends to the relationship of man with *Nature*. *Nature as impression* touches man in his totality. Hence everything false and perverted which man bears within

himself can achieve expression in this concrete living relationship too and cause confusion (pinchbeck emotion, pseudo-artistic palpitations of the soul, dictated raptures, stimulation to secretive manias, etc.). But even *Nature as object* (*Sache*) reveals the ambiguity of the human situation. Man can intellectualize everything into an *object*. Theoretical objectification is the presupposition for the practical mastery of Nature. From this springs the great danger of the *cancer of intellectualizing* (*Auswuchern des Sachdenkens*) which is expressed in a theoretical, scientific way in the famous program of the supremacy of the scientific method and practically in the will to mastery which stops for nothing, not even the human soul. Man is turned into a *thing* and (because intellectualizing, whenever it deals with action, always operates in the category of means-end) is devalued to the status of *means*. Here Litt adds an extremely enlightening consideration of "the demonic in the means" (pp. 121 ff.). What serves man as *means to construction*, since he has made it into a thing, is at his disposal equally as *means to destruction*. There proceeds from these means a demonic lure to utilize them also for the negative. This is again shown clearly by war. "To be armed for war is not only to have at one's disposal the means requisite to carry it on, it is to be exposed to the temptations which the means exert all the more strongly the more confidence they command" (p. 129).

Uncertainty is rooted in man's freedom. Man has withdrawn himself from the embrace of Nature; he stands over against it as a free being despite all connections and ties, and similarly within the society which surrounds and cradles him he matures into a person who decides and acts out of his own responsibility. That is his glory — but also his peril. For he can decide for the abnormal as well as for the normal, for good as well as for evil, for the sane as well as for the irrational, for value as well as for that which is inimical to value. He has the "freedom of reviling the normal" (p. 138). Freedom thus comprises the negative as well as the positive. The metaphysical difficulty would be removed from human existence if freedom extended only to the positive, and the negative were regarded as *necessity* divorced from freedom. Evil is not always a privation or negation. The proposition "all degrees

of value are also degrees of actuality" is false. This implies an "inadmissible imputation of security to human existence" (p. 136). The potentiality for evil belongs to the essence of Mind. "Man's soaring is a hovering between the heavenly glow of the heights and the blackness of the pit" (p. 140). Man in his freedom is, since he is filled by the eternal restlessness of Mind, a *historical being,* without an absolute resting-place.

Litt's picture of man is extensively colored by Pascal's, to whom he frequently refers. Litt too sees the grandeur and misery of man indissolubly interwoven with one another; for him too is man the "master and outcast of the universe." "Man is the middle being, who wanders between the infinite and nothingness, between light and darkness, between knowledge and madness, between self-aggrandizement and self-contempt, between angel and beast — or in the words of faith: between salvation and damnation" (p. 140).

Yet the *final* word on man has not yet been uttered. We said that Litt wishes to offer more than a philosophical anthropology. His theme is not *man,* but *man and world.* And the overarching concept is the concept of *Mind.* Therefore he develops in the succeeding chapters (IX to XII) the relation of man and world once again, this time, however, placing the accent on the world. (a) He converts the question: "What is the significance of the world for man?" into the question: "What is the significance of man for the world?" (b) Chapters XIII and XIV conclude this part, showing how Mind rises to knowledge of itself and accordingly to its mission in the world. (c) And in the final chapter (XV) it is brought out that regardless of all the ambiguity of man, that which according to its content is positive necessarily asserts the ideal order.

(a) The line of thought which Litt develops here is as keen as it is irrefutable. For thinking which remains the prisoner of spatial representation the problem whether man means something for the world, whether he possesses *importance* in the world, is always absurd. For such thinking, man seems only a pigmy, a spawn of inscrutable nothingness in a corner of the universe. Yet this external mechanical separation of man and world is false. The bond between man and world

is *reciprocal*. Man becomes what he is only through the world. But the converse is also valid: the world becomes that which it is only through man. The *liberation of the world to its own status* comes about through Mind. This Mind is, however, no third thing which hovers *over* man and world, but it has its support and center in man. Mind forms, to demonstrate what is abstracted from every intuition, the knot which envelopes man and world, not from the outside but rather from the inside, since man comprehends and recognizes himself as Mind. Any metaphysic of the *tertium quid, i.e.*, all those lines of thought which first isolate man and world and regard them as two self-contained powers so as to unite them then through a third power, is in error. This third power is called in these various systems — depending on which one — "the Absolute," "Substance," "God," "Nature," "Life," "the World-Soul," "the First Cause," "Will," "the Supra-personal," "the Unknown," or simply "Being" or "Reality." That which mediates and comprehends is Mind, which presents *no* third power, however, since it actualizes and grasps itself in our own thinking and acting, and which neither exists detached from the world nor can be dissolved into the world. "Either Mind is itself, from itself, and through itself, or — it is nothing whatsoever... This is a denial that for what occurs in Mind and as Mind a transcendental 'ground' — call it what you will — is responsible. It is a categorical denial that it may be conceived as externality, form of appearance, epiphenomenon, mirroring of consciousness or as efflux, effect, continuation, sublimation of anything whatsoever that is not itself Mind" (p. 154).

From this point Litt achieves an entirely new solution of the problem of freedom and dependence. Man is both dependent and free. We must give up the *exclusive* character of the opposition of freedom and dependence. Man is dependent on the world. But "A knowledge of this dependence is for me attainable only under the presupposition that I have in the completion of this knowing, at least, raised myself beyond it" (p. 160). *Genuine* knowledge presupposes freedom. We can neither combat the dependence without deranging the *content* of our knowledge, nor combat freedom without deranging the form (the *validity*) of our knowledge. It is a fatal self-

contradiction to deny the freedom of the thinking ego in propositions which claim to be *true*. It rests always on the error of making the ego an *object* in the world, completely causally determined. The relationship of ego and world is nevertheless not a relationship which can be encountered *within* the horizon of the world as objectively comprehended, but through the relationship of ego and world this horizon is originally formed and given content. The ego is no component of the objective world, but is its necessary counterpart. The quintessence of this exposition is the knowledge "that in this fundamental relationship freedom and dependence do not exclude one another; not only can they exist next to and together with each other, but they reciprocally demand and condition each other" (p. 163).

All these expositions remain incomprehensible if one does not undergird them with the correct concept of Mind. Mind is no fragment of actuality, man is not a creature fitted out with the attribute of Mind, which can be taken out of the world without the gentlest diminution of his former condition and essence. Mind is, as Hegel once understood it, creative act, in whose completion world and self first become that which they have to be. Therein lies the world-mission of man, which is unavoidable not only for the completion of his condition but also for the *perfection of his essence*.

We found above that *Mind first becomes Mind in traversing the world*. The ambiguity of human existence rests on the fact that man is at the same time world and Mind. In him are bound to indissoluble unity imprisonment in the finite and participation in the transfinite. "In all the grandeur of his mission, he remains what he was: a solitary, limited, ephemeral, and myopic creature of earth" (p. 210). Knowledge of man's world-mission signifies no *apotheosis of man*. And conversely the world, by the strength of its relation to man yields ambiguity. "In that which is good as well as that which is evil are man and world firmly united to one another" (p. 212). "In the ambiguity, which makes a riddle of the countenance of man, is betrayed terribly but with unsparing honesty the hellish abyss of the actual which confronts itself in this selfsame man" (p. 213). The Christian metaphysic expresses this, since it makes earthly reality as fallen creation participate in the guilt of mankind.

(b) But all knowledge of the dual aspect of man and world is in fact *knowledge*, and in this man attains an absolute point beyond all dubitability and finitude. In man Mind fathoms itself, i.e., it recognizes the *identity of knower and known*. The chapters "The Self-Discovery of Mind" (XIII) and "The Progressive Structure of Truth" (XIV), in which Litt expounds the essence and structure of Mind which knows about itself and about the "Other" (the world), demand of the reader the highest measure of intellectual concentration and active co-operation with the train of thought. How could this be otherwise, when Mind thinks on its own thinking! The stages of Mind are the following:

I. Mind grasps (*Übergreift*) the world (consciousness);

II. Mind conceives its grasping the world (self-consciousness); it recoils on its own activity (simple reflection);

III. Mind conceives that it conceives its grasping the world (intensified self-consciousness, reflection on reflection).

Mind can penetrate no deeper into itself. There is no higher degree of reflection — knowing which knows itself, self-consciousness conscious of itself, is the final, the absolute stage.

To this progressive structure of Mind correspond the stages of Truth. The True is not carried forward on a *single*, logically uniform plane. Once again we find three stages:

I. Truth concerning things (the natural sciences);

II. Truth concerning meaning (*Sinn*) (the cultural sciences and philosophy);

III. Truth concerning Mind (the philosophy of philosophy).

This presentation is naturally highly oversimplified and insufficient for the location of the particular sciences. Reference emphatically should be made to Litt's complementary work, *Denken und Sein*. Above all one must guard against regarding this progressive structure of the various truths as something given or discovered and isolating the particular stages. The whole is the work of Mind fathoming itself. Mind *mounts itself*. The individual truths are not separately co-ordinate or subordinate to one another, but "each special form of truth is valid only within the system of the Truth" (p. 234). Truth

is to be sought neither in undifferentiated unity nor in unrelated plurality. (Hegel: "The True is the Whole.") This yields the *justification* as well as the *limitation* of truths concerning things. In the progressive structure of Mind research into things is not merely tolerated, but as a necessary and indispensable component has its place. Without revelation of the world there is no revelation of the self. But the revelation of the self is what first insures the validity of the revelation of the world. Thought about things which posits itself as absolute undermines itself; it commits logical suicide.

In knowledge, therefore, man achieves victory over ambiguity, achieves *univocity*. (A simple logical consideration shows that the concept "ambiguity" cannot itself be ambiguous without destroying itself, but must instead be univocal.) Every thoroughgoing scepticism or relativism is self-refuting. Regardless of all the uncertainty and misery of human existence, however, the unconquerable worth of man lies in thinking and knowing, precisely in the fact that he *knows* his own uncertainty. (Here, too, we see how Litt and Pascal agree.)

(c) The crown and capstone of the work is the chapter "The Precedence of Positive Meaning" (*das Sinnpositive*). The precedence of the univocal over the ambiguous, of the true over the false, is in the logical sphere, significantly, unimpeachable. The concept of the *true* is pre-ordinate to the concept of the *false*, else the latter would have no meaning. Is this *superiority* of positive meaning over negative meaning also valid in the *non-theoretical* sphere? Alongside the conceptual pair true-false stand the pairs holy-unholy, good-evil, genuine-spurious, beautiful-ugly, healthy-diseased, useful-injurious, which in a similar sense involve what is in conformity with the normal and what is contrary to it (value and contravalue). Here we have no such immediate self-warranty as in the realm of truth. Litt points out, however, the precedence of that which is conformant to the norm and positive in meaning, since he shows that every denial (rejection of a value-quality) is possible only in that one *ideally* affirms the value-quality. One can, for example, call the world thoroughly ugly or evil. But this judgement presumes that one recognizes the beautiful and good as a standard. "It is possible to deny only that which is

susceptible of affirmation" (p. 266). "Thus the lie lives by reason of the truth, wickedness by goodness, the ugly by the beautiful... Legend gave this relation of dependence profound expression when it made Lucifer an apostate angel of God" (p. 273).

But this primacy of the positive ought not to lead one to mistakenly optimistic conclusions concerning man's situation. The negative does indeed live only by the grace of the positive, but it *lives*. *It* has indeed only a secondary meaning, but it nevertheless has a *meaning* and is as powerful in man as the positive. Man himself by free choice accomplishes the decision between the positive and the negative, and the negative has no less real content than the positive. We must desist from "believing that human existence is guided by some sort of forces for the right which require only the slightest assistance to achieve progress, improvement, and fulfillment" (p. 276). Man is not guided; he guides himself. And that means that lapse into the negative is just as possible as advance into the positive. Man hovers in freedom between Heaven and Hell, and a meaning exists only in concrete performance, which includes venture, guilt, and disaster. One must differentiate between *ideal meaning* and *factual occurrence*. Whoever has learned this, knows "that the inward justice of this state of meaning can be shattered by none of the defeats by which those appointed as its advocates are soiled time and again. Not the slightest lessening of the primacy of the positive would occur if it should so happen that in the real course of things the negative carried off the honors all down the line, even if by its triumph it should effect the physical or moral destruction of all mankind. Even at the height of its success the victorious might would not cease to draw its strength from that which superficially succumbed to its onslaught, and thus involuntarily testify for that which was seemingly destroyed" (p. 277).

This tension between meaning and reality and the inescapable threat of lapse of significance (*Sinnverfehlung*) condition the *tragic existence* of man. Tragedy is the interweaving of grandeur and misery. "Tragically to live, tragically to die is the prerogative of that being who does not let himself be swept along blindly and ignorantly by non-understood forces of

existence, but with open eyes — gambling for the stake of the self-determined significance of his life — takes up the struggle against the higher powers and even in defeat, in fact precisely in defeat, bears witness for his cause. Live tragically and live a life fulfilled: the two are inseparable. In this way tragic existence is a *human* existence in the deepest sense" (p. 278).

The superiority of positive meaning-content simultaneous with destruction in actuality corresponds, as Litt conclusively shows, in the Christian idea of faith, to the supremacy of the divine in the sinful and transitory world. Here, too, is the holy certainty of the soul never separable from the knowledge of its inadequacy and frailty.

Litt's philosophy, it can definitely be said, is a continuation of the thought of German idealism, especially that of Hegel. But with Litt the self-actualization of Mind is no objective process which is accomplished apart from man (Litt rejects Hegel's philosophy of history and the concept of the World Mind), but is achieved only in man and through man. Man is uncertain and frail, not despite the fact that his being involves Mind, but because it does. The ideas of the Christian metaphysic (and in a certain sense also those of existentialism) are taken up by Litt into his philosophy of Mind, which offers a taut and rounded synthesis of western philosophy. The richness, the depth, and the marvelous systematization and fertility of Litt's thought are only revealed to the reader on a deep penetration into his works, especially on repeated readings of the present book. *Mensch und Welt* must be put beside Pascal's *Pensées* and Hegel's *Phenomenologie des Geistes*, this juxtaposition characterizing equally the historical place and the intellectual elevation of the book. Litt combines in himself Pascal's keenness and Hegel's profundity to form a *new* picture of man, world, and Mind in which all previous attempts to decipher the riddle of existence are united and consummated. Yet the expression "picture" is misleading. For it is not a question of a picture, of a "copy," but of the self-discovery and self-assurance of Mind which grasps both man and world.

WALTER STEGER

Munich, Germany.

The Review of Metaphysics, Vol. V, No. 3, March 1952.

MEDIEVAL PHILOSOPHY *

It is no longer necessary, or even fashionable, to be ignorant of medieval philosophy. We no longer pass from Plotinus to Descartes as if nothing had happened in between. On the contrary, the Thomists have become so aggressive that it now seems almost as if ancient and modern philosophy should apologize for themselves and defend their claims to importance. Nevertheless, there is a widespread ignorance of medieval philosophy even among the learned. If the Thomists have not quite convinced us that Thomas is the one great figure in all philosophy, they have at least convinced us that he is the one great figure in medieval philosophy, and many believe that they know medieval philosophy because they know something about him. Yet, as Copleston says (p. 433), "It must not be supposed that Thomism ever acquired in the Middle Ages that official position in the intellectual life of the Church which it has occupied since the Encyclical *Aeterni Patris* of Pope Leo XIII." Even if it is now "proposed as a norm from which the Catholic philosopher should dissent only when inspired by reasons which seem to him compelling," its present preeminent position is due to "the historical circumstances of recent times... not those obtaining in the Middle Ages." Historically, Thomism is one chapter in a vast literature. Modern Neo-Scholasticism is an intensive study of this chapter, and, like any intensive study, it should enlighten the whole of which it is a part. The full story of medieval thought is vast and amorphous. Medieval

---

* Frederick Copleston, S. J.: *A History of Philosophy*, Vol. II, *Mediaeval Philosophy Augustine to Scotus* (Westminster, Maryland, Newman Press, 1950), x, 614 pp. $4.50.

S. J. Curtis: *A Short History of Western Philosophy in the Middle Ages* (Westminster, Maryland, Newman Press, 1950), 286 pp. $3.25.

Nicolaus von Cues: *Texte seiner philosophischen Schriften, nach der Ausgabe von Paris 1514, sowie nach der Drucklegung von Basel 1565*, hsgn von Alfred Petzelt, Band I (Stuttgart, Kohlhammer, 1949), xxxviii, 369 pp. DM 21.

H. Dooyeweerd: *Reformatie en Scholastiek in de Wijsbegeerte*, Boek I, *Het Grieksche Voorspel* (Franeker, Wever, 1949), 496 pp. f 20.

philosophy is no more homogeneous than modern philosophy. Christianity, to be sure, was the unifying psyche of medieval civilization, and it dominated medieval philosophy in the same way in which science has dominated modern philosophy, but it did not determine either its content or its development. In fact, it hardly had any development in the sense of growth, maturity, and decay except from some arbitrary point of view. Aquinas, for example, belongs to its period of growth for an Occamist, maturity for a Thomist, or decay for an Augustinian. Medieval philosophy is not a system, not even a "type of philosophy," and certainly not something which can be learned, but an inexhaustible mine of intellectual and spiritual treasures. Its study offers rich returns not only for historical understanding of our intellectual heritage but also for philosophical understanding of eternal truths.

The second volume of Father Copleston's *History of Philosophy* covers the period from Augustine through Duns Scotus. Of its 51 chapters Aquinas has eleven, Augustine and Duns Scotus six each, Bonaventura five, Erigena two, and Dionysius, Anselm, William of Auvergne, and Albertus one each, while other philosophers are treated more briefly. The author's point of view is strictly and explicitly Thomist, and the book is intended primarily as a textbook for use in Catholic seminaries. But it is written with such scholarship, integrity, and clarity that it should interest a much wider circle of readers. Apparently the book is based on a thorough study of the original sources. The documentation, while not detailed, is as complete as one expects in a general work of this sort. Since the Thomist concept of philosophy is accepted, little is said about mysticism or dogmatic theology. But the various rationalistic philosophies are analyzed with a critical sympathy which endeavors to appreciate their various insights into the nature of reality.

The clearest and most penetrating chapters are those devoted to Thomas himself. They begin with a summary of the basic principles of his philosophy (realism, existentialism, objectivity, independence of religion, recognition of its own inadequacy) and end with a discussion of Thomas' relation to Aristotle. "Neo-Platonism, Augustinianism, Aristotelianism

and the Moslem and Jewish philosophies came together and were fused in Thomism," which is "a synthesis of Greek philosophy, harmonised with Christian theology" (p. 561). With regard to the relation between theology and philosophy, there was, with one qualification, "no essential difference in attitude" between Augustine and Aquinas; although the latter made a distinction between philosophy and theology, "*fides quaerens intellectum* was none the less the attitude of St. Thomas" (p. 555). The qualification is that Aquinas adopted the Aristotelian system unknown to Augustine and so "provided the material for an independent philosophy" (p. 556). The desirability of reconciling this system with Christian theology was clear, "since to reject the Aristotelian system would mean rejecting the most powerful and comprehensive intellectual synthesis known to the mediaeval world" (p. 423). But "the synthesis achieved by St. Thomas was intrinsically precarious" (p. 430), and Copleston lays special emphasis on the "tension" between the Aristotelian and Christian viewpoints in Aquinas' philosophy (pp. 428ff).

This tension is seen especially in cases where Aquinas, while utilizing "Aristotelian themes for the purpose of systematisation," went beyond the doctrine as Aristotle taught it. He adopted the theory of act and potency. "But St. Thomas saw deeper than Aristotle: he saw that in every finite thing there is a duality of principles, of essence and existence, that the essence is in potency its existence, that it does not exist necessarily, and so he was enabled to argue not merely to the Aristotelian unmoved Mover, but to the necessary Being, God the Creator" (p. 424). Again, the concept of finality is applied not only in cosmological, psychological, ethical, and political doctrines but also to explain creation, which has a purpose — to diffuse the divine goodness. "In this way St. Thomas was able to utilise the Aristotelian doctrine of finality in a Christian setting" (p. 425), but both the doctrine of God and the doctrine of creation are radically non-Aristotelian.

The non-Aristotelian, yet demonstrable, thesis that God's essence is existence is the very heart of the Thomist metaphysics, and here again tension arises between this thesis and the Aristotelian empiricism. Copleston is particularly clear in his

extended discussion of Aquinas' proofs of the existence of God. He stresses the distinction between a proposition's being self-evident in itself and its being self-evident to us. The existence of God is self-evident in itself, because God's essence is existence, so that "one cannot know God's nature, what God is, without knowing God's existence, that He is"; but it is not self-evident to us, because "a man has no *a priori* knowledge of God's nature and only arrives at knowledge of the fact that God's essence is His existence after he has come to know God's existence" (p. 337). This necessary truth, consequently, can only be established by empirical evidence. (In modern terms, we might say that the proposition *God exists* is an analytic judgment *a posteriori*.)

If the discussion of Aquinas is the best, other parts of the book are also admirable for their scholarship and lucidity. The chapters on Duns Scotus are not always so easy to follow, but that is Scotus' fault, not Copleston's. The system of Bonaventura, "the philosopher of the Christian life" (p. 291), and especially those doctrines which distinguish it from Thomism are presented so sympathetically that a reader might well be converted to Bonaventurism if he stopped reading the book at that point. The little known figure of William of Auvergne receives deserved recognition both for his "vigorous, original, and systematic" thought and for his historical importance as the founder of Christian Aristotelianism and precursor of both Aquinas and Bonaventura. The exposition of Erigena is excellent, especially the consideration of his supposed pantheism; unlike some writers, who take a stand for or against the thesis that Erigena was a pantheist, Copleston presents the relevant passages on both sides, and concludes that "two distinct lines of thought are present in his teaching about creation" (p. 124).

I regret that Copleston begins the volume with Augustine, after one preliminary chapter devoted to the earlier Latin and all the Greek Fathers. The writer of a history of medieval philosophy has the right to begin the Middle Ages wherever he pleases. But this is not a history of medieval philosophy. It is the second volume of a general history of Western philosophy, and it should begin where the first ended, which

was with the Neoplatonists. Copleston's treatment of the early Christian philosophers is quite out of proportion. Origen, although acknowledged to be "the first great synthetic thinker of Christianity" (p. 28), has two pages, and John of Damascus, although called "the Scholastic of the Orient" (p. 38), has half a page, as compared with Augustine's fifty.

My only serious criticism is of Copleston's acceptance, not only of the Thomist definition of philosophy, but also of the Thomist distribution of doctrines between philosophy and theology, as the criterion of what can be discussed. For example, after expounding the first part of Anselm's treatment of God, he says: "St. Anselm proceeds, in the *Monologium*, to give reasons for the Trinity of Persons in one Nature, without giving any clear indication that he is conscious of leaving the province of one science to enter that of another, and into this subject, interesting as it may be to the theologian, we cannot follow him" (p. 161). The question arises: why does Copleston discuss Anselm's proof of the existence of God? It is not because Anselm thought it was rational, for in that case he would be equally obliged to discuss his proof of the Trinity. It is not because Copleston thinks it is valid, for he does not. It is only because somebody else proposed a different proof of the existence of God which Copleston does consider valid, thereby making the problem itself a "philosophical" one. This seems dubious historical procedure. In any case it seriously perverts the teaching of Anselm, the essence of which is that all dogmas are rationally demonstrable.

Dr. Curtis' *Short History of Western Philosophy in the Middle Ages* is a very different sort of book. It is avowedly elementary, being intended, as the preface states, for undergraduates, students in university extension classes, and the general public. To write a book for beginners is often more difficult than to write a more advanced book on the same subject, and Curtis has not entirely succeeded in this difficult task. In clarity, the first requirement for an elementary work, his book is quite inferior to Copleston's. Considerable space is devoted to trivial historical details which further obscure the philosophical discussion. Some statements seem to be of doubtful accuracy. It is surprising to read, for example, that for

Augustine the divine ideas are "of the same nature as the soul" (p. 16), or that there is no English translation of Anselm's philosophical works (p. 80), or that the *primum mobile* is "the unmoved sphere that encircles the universe" (p. 110), or that for St. Bernard humility springs from love (p. 256).

Another example is his treatment of Abelard's theory of universals. In 1836 Victor Cousin, in his zeal to show that medieval, like modern, philosophy was founded by a Frenchman, published and attributed to Abelard an anonymous twelfth century work on universals called *De Generibus et Speciebus*. Critical scholars did not take this attribution seriously, since there was no evidence for it, and any residual doubt was dispelled when Bernhard Geyer published Abelard's own work in 1919. Abelard not only sets forth a theory of universals radically different from that of *De Generibus et Speciebus* but also includes an explicit refutation of the latter. Curtis, however, accepts this work as being Abelard's. If this were all, one would conclude that he was not a specialist on Abelard and so not familiar with the recent literature. But he also recognizes the genuine Abelard of Geyer's edition and expounds Abelard's theory of universals by quoting indiscriminately from the two mutually opposed works, the result being complete confusion.[1]

The book does, however, cover its vast subject in a concise way, and will give its readers some impression of the richness, variety, vigor, and philosophical worth of the intellectual life of the Middle Ages.

Learned ignorance is particularly widespread concerning Nicholas of Cusa. It is generally recognized that he is of outstanding importance as a transitional figure between medieval and modern philosophy, but few seem to know just what his doctrine was. This may be due to the fact that neither

---

[1] Copleston seems to make the same error of accepting *De Generibus et Speciebus* as Abelard's (p. 147; in note 3, for "153" read "513"), but he expounds Abelard's theory from the genuine work alone. The anonymous book is itself a work of considerable merit, deserving to be read by anyone interested in the problem of universals.

medievalists nor Renaissance scholars are interested in a man who lived between the two periods (1401-1464) and so belonged to neither. But it is also due to a lack of texts. In 1932 the Heidelberg Academy of Letters began the publication of a projected critical edition of his complete works, elaborately edited and beautifully printed, in fourteen volumes (only some of which, however, have actually appeared). The purpose of Professor Petzelt's work, as he explains in the preface, is to provide an inexpensive edition, in order that every student may have his own copy instead of having to borrow it from the library. The published volume includes *De Docta Ignorantia, De Coniecturis, De Deo Abscondito, De Quærendo Deum, De Filiatione Dei, De Dato Patris Luminum, De Genesi, Apologia Doctæ Ignorantiæ, Idiota de Sapientia,* and *Idiota de Mente.* A second volume to include the remaining philosophical works is promised. The text is based on a collation of the standard 1514 and 1565 editions, the pagination and variants of both these editions are indicated, the format is attractive, and the type is most readable. For ordinary purposes this new edition is just as useful as, and much more convenient than, the de luxe Heidelberg edition.

A student of medieval philosophy who reads only *De Docta Ignorantia,* Nicholas' best known work, will find himself listening to a new variation on the old theme of Christian philosophy. Nicholas employs neither the familiar language of the Augustinian tradition, nor that of the Aristotelian-Thomist tradition, nor that of the mystical tradition based on the Song of Songs, but a new technical language in which *complicatio, explicatio, contractio,* and *complexio* are among the key terms. I am not acquainted with earlier examples of this terminology. If it is original with Nicholas, it would seem that he, like Whitehead in the twentieth century, deliberately invented a new metaphysical vocabulary in order to avoid unwanted connotations of more familiar words. Another stylistic feature is a fondness for mathematical analogies. If Augustine's doctrine is a Christianized Platonism and Aquinas' a Christianized Aristotelianism, Nicholas' is a sort of Christianized Pythagoreanism. He cites Pythagoras and his doctrine that "all things are established and understood through the

force of numbers" at the very beginning of the book. But, just as Augustine's philosophy, in spite of its Platonizing, is radically different from anything taught by Plato, and Aquinas' radically different from anything taught by Aristotle, so Nicholas' is quite unlike anything we can attribute to the Pythagoreans. Nicholas' real interest is in that which eludes mathematical treatment just because it is greater than any number.

Since knowledge proceeds only by the discovery of some proportion between the unknown and the known, he says, and the infinite has no proportions, the infinite is unknowable. We have an instinctive desire to know the finite, but we also have an instinctive desire to be ignorant of the infinite. We fulfill the former by making progress in knowledge, and we fulfill the latter by making progress in ignorance. "For even to a man who is most zealous in learning, nothing can happen more perfect than to be found most learned in that ignorance which is proper to him; and anyone will be the more learned the more he knows that he is ignorant" (p. 3). The three parts of *De Docta Ignorantia* are devoted to three objects of ignorance: God, the universe, and Christ.

While we can have no knowledge about God, Nicholas shows that we can have considerable "ignorance" about him. He demonstrates that God, defined as the *maximum* (or, what is all the same, the *minimum*), is absolute unity and at the same time a trinity of "oneness, equality, and togetherness" (*unitas, æqualitas, connexio*) — as Pythagoras himself taught, so Nicholas says. All things are an unfolding (*explicatio*) of God, and God is the folding or winding up (*complicatio*, "like a ball of string") of all things. Things come into existence by limitation (*contractio*) of, or flowing (*emanatio*) from, God. They have a mutual connection (*complexio*) by which they are bound together (*connexa*) into a universe (*universum*), which is God under the aspect of limitation (*maximum contractum*). The universe, finite but unbounded, has no physical center, since God is its center (or, what is all the same, circumference); consequently the earth is not at its center, as commonly supposed, but moves like other stars; and there are as many worlds as stars, each with its own inhabitants. Greatest among limited things is that "which is simultaneously limited

and unlimited" (*quod simul est contractum et absolutum*), and from this definition Nicholas deduces all the orthodox dogmas concerning Christ.

The facility with which he demonstrates the dogmas of faith reminds one of Anselm, while his pantheism reminds one of Erigena. As a rationalist he yields to neither of them. The Incarnation, for example, for Anselm a legal necessity resulting from the crime of the Fall, and for Erigena a metaphysical necessity resulting from the cosmic catastrophe of the Fall, is for Nicholas a purely logical necessity demonstrable without reference to the Fall, required not by the nature of man but by the nature of Christ as the greatest limited thing. But the classical problems of scholastic epistemology, the demonstrability of the existence of God and the relation between faith and understanding, concern Nicholas very little. He does not seem to consider that God's existence needs demonstrating, and he remarks rather briefly that understanding is the "unfolding" (*explicatio* [2]) of faith — whether in theology or any other science, the first principles of which must be taken on faith. What does concern him is the sort of knowledge which he paradoxically insists on calling "ignorance." I take it that, just as a geometry teacher might tell his empirical-minded pupils that the more they fail to *see* the more they will progress in apprehending the invisible but intelligible circle, but then draws a visible circle in order to demonstrate its properties, so Nicholas is reminding his rational-minded readers that the more they fail to *know* the more they will progress in apprehending the unknowable but adorable God, but then gives logical arguments to indicate His properties. Just as perfect understanding of intelligible truth means complete cessation of sense perception (blindness, so to speak), so mystical intuition of ineffable truth means complete cessation of understanding (ignorance, Nicholas calls it). And this unknowability is the very thing which makes God worthy of worship. "I worship him," says Nicholas, in an aphorism worthy of Tertullian, "*because* I am ignorant of him" (*Quia ignoro, adoro* [3]).

---

[2] P. 112, where the text actually says *complicatio*, apparently an error in the source.

[3] *Dialogus de Deo Abscondito*, p. 203.

From Holland comes an impressive work, Part I, "The Greek Prelude," of a "trilogy" entitled *Reformation and Scholasticism in Philosophy*, by Herman Dooyeweerd, professor in the philosophy of law at the Free University of Amsterdam. A dialectical analysis of the pre-Socratic and Platonic philosophies is intended, apparently, only as a "prelude" to the further study. The second part, according to the accompanying prospectus, will compare the philosophy based on the concept of law with the scholastic way of thinking, while the final act of the trilogy will exhibit "the anthropological insights of the philosophy of the concept of law," based on "the radical unity of human existence" in creation, fall, and redemption — something quite different from either the Greek or the scholastic psychology. Obviously the book will have few readers in this country, unless translated, and in any case it could not be judged from its introductory part. But the concept of scholasticism as one stage in a larger development is a thought worth contemplating as a happy medium between those who would dismiss scholasticism as medieval pedantry and those who would exalt it as the supreme statement of *philosophia perennis*.

GEORGE BOSWORTH BURCH

Tufts College.

The Review of Metaphysics, Vol. V, No. 3, March 1952.

Explorations

SOME BASIC PROPOSITIONS CONCERNING METAPHYSICAL ANALOGY

Analogy is:

1. A likeness of relations or proportions involving at least four terms that are distinct from each other either really or logically.

2. Such that the common term or predicate is intrinsically, yet proportionally present in all the subjects of which it is predicated: A is B; C is B, but each in its own way, i.e., proportionately to its nature.

3. Opposed to all degrees of "univocity" — which, radically, is likeness in the order of essence or whatness.

4. Rooted in the relation of essence to act of existing.

5. The mode in which the many are one; i.e., the many *are* one proportionately — by a likeness of proper proportionality.

6. Ultimately grounded upon the imitability (always necessarily proportional) of the divine Act of Being.

JAMES F. ANDERSON

University of Notre Dame.

COMMENTS ON MR. ANDERSON'S THESES

I

In general I agree with these theses, however, I

1. Would like it explained why three terms might not sometimes be sufficient (as God's relation to me is analogous to my relation to my son) or even two (as God's love for me is analogous to my love for God).

2. Would like it explained why a predicate might not be only extrinsically in a subject, that is, why there might not

be analogy among external relations.

3. Would like it explained what degrees of univocity are, as I had supposed this to be something absolute; or if there are degrees, why analogy is not the lowest degree of univocity or univocity the highest degree of analogy.

4. Would like this explained, as it is not clear.

5. Would like it explained why analogy is not rather the opposite of the way in which the many are one, since a given thing seems to be one in one sense and many in an opposite, not an analogous sense.

6. Would like it explained how this distinguishes analogy from anything else, since everything created seems to be in some sense an imitation of the divine Being.

GEORGE BOSWORTH BURCH

Tufts College.

II

1. A proportion in mathematics is the identity of two relations of magnitude: $a/b = c/d$.

2. An analogy in general is the identity of any two relations: $a\ R\ b = c\ R\ d$.

3. In mathematical proportion it is possible to calculate the value of one term if given the values of the other three.

4. In analogy in general, where the relation is not quantitative, it is impossible to ascertain the nature of one term from the other three. Thus, if we were given that God is to the world as a father is to his child, and knew the nature of the world and of a father and of a child, this would not enable us to discover the nature of God.

5. Many people have gone wrong, especially about God, through assuming that metaphysical analogy must admit calculation because mathematical analogy does so.

6. Metaphysical analogy is trivial. It is merely the fact

that some relations have more than one example.

RICHARD ROBINSON

Oriel College, Oxford.

III

1. In Dr. Anderson's first proposition, the word "logically" requires some clarification. Is a purely logical distinction sufficient to set up two of the terms? For instance, is this a legitimate analogy: God's essence is to His existence as the essence of a creature is to its existence? How can the first two terms here be regarded as *proportional*? They are strictly identical, without any intrinsic basis for making the distinction. Does St. Thomas Aquinas ever make use of such an analogy, as he does in the case of attributes like the divine will which are virtually distinct from the divine nature?[1] Can such an analogy be seen in the text of *De Potentia*: Deus autem alio modo se habet ad esse quam aliqua alia creatura; nam ipse est suum esse, quod nulli alii creaturæ competit?[2]

3. The third proposition seems to imply that outside metaphysical analogy there are only different degrees of "univocity." This would mean that things expressed according to the Aristotelian πρὸς ἕν relations, or in Scholastic terminology "analogy of attribution," should be classed as basically "univocal." This seems to be against the tra litional usage cally "univocal." This seems to be against the traditional usage organism are healthy in a way that is basically univocal, just because the reference in all cases is to one and the same nature, would be to miss the import of this type of metaphysical procedure, as well as to cause confusion in the traditional terminology. Would not the interests of clarity be better served by retaining the basic opposition between the Aristotelian μοναχῶς and πολλαχῶς λεγόμενα? For the latter type

---

[1] ... et per hunc modum est similitudo inter creaturam et Deum: quia sicut se habet ad ea quæ ei competunt, ita creatura ad sua propria. *De Ver.*, XXIII, 7, ad 9.

[2] *De Pot.*, VII, 7c.

I would suggest retaining "equivocal," which goes back to Boethius, who has given the fixed and definite meanings to so much of the traditional terminology. Basically opposed to the "univocal" will be the "equivocal," and under this latter class will come its three main divisions: equivocal by chance, equivocal by proportion, and equivocal by reference.[3] Analogy, then, will be equivocity by proportion, and will be opposed immediately to the other types of equivocity, all of which as a class are opposed to the univocal.

4. The fourth proposition would restrict metaphysical analogy to a philosophy which is based upon this distinction, namely to the metaphysics of St. Thomas Aquinas. Yet in Aristotle, where this distinction does not enter, there seems to be metaphysical analogy, for instance in the four causes,[4] and in every category of being.[5] Likewise in the philosophy of Duns Scotus is there not a truly metaphysical analogy between the common nature and minor unity, as compared with the individual and numerical unity?[6] Yet there is no question of this proportion being rooted in the relation of essence to the act of existing; it lies in the Scotistic metaphysical order which is built up upon the entity of the common nature. In a word, this fourth proposition seems to confine metaphysical analogy to the philosophy of St. Thomas.

6. The clarification of the sixth and last proposition will depend upon the answers given to the queries regarding propositions one and four above. The implication here seems to be that all metaphysical analogy is ultimately grounded upon the relation of the divine essence to Its act of existing and the imitability of this relation. But, as asked in regard to the

---

[3] Boethius, *In Cat. Arist.*, I; *PL* 64, 166BC.

[4] *Metaph.* Λ 4, 1070b25-27.

[5] *Ibid.* N 6, 1093b18-21.

[6] Et sicut objectum in intellectu secundum illam entitatem ejus et universalitatem habet vere esse intelligibile, ita etiam in rerum natura secundum illam entitatem habet verum esse extra animam reale: et secundum illam entitatem habet *unitatem* sibi proportionabilem, quæ est indifferens ad singularitatem ita quod non repugnat illi unitati de se quod cum quacumque unitate singularitatis ponatur. Duns Scotus, *Op. Ox.*, II,3,1,7; ed. Quaracchi, II,229-230(no. 235d).

first proposition, can this relation, which is strict identity, enter into a legitimate analogy?

JOSEPH OWENS

St. Patrick's Rectory, Toronto.

RESPONSE TO COMMENTS

I

ON MR. BURCH'S COMMENTS

1. In the analogy, God is to me as I to my son, there are but three really distinct terms: God, me, and my son. But the second term, used twice, signifies the same reality (me) differently, thus giving two terms logically distinct: me as *created son* and me as *natural father*. Again, God's love for me is analogous, by a true metaphysical analogy, to my love for God, although His love for me is infinitely different in its mode than mine for Him. Here, too, there are four terms: God, His love for me, myself, my love for God; and the relations between them are only proportionally similar, i.e., analogous by "analogy of proper proportionality."

2. There can be, and is, analogy among external relations, attributive, metaphorical or symbolic analogies, but such analogy is not metaphysical because (as I see it) the latter analogy is found only in the being of things and hence concerns only intrinsic relations.

3. "Univocity" as such is absolute conceptual identity; to speak of "degrees of univocity" is to indicate that there are grades of realization of univocal notions, *e.g.*, one man is a better man than another, though as man they are univocal. (The concept and term "man" is univocal.) Metaphysical analogy is not found in varying degrees of likeness and unlikeness within or under univocal categories, because such analogy of its very nature involves simple or absolute diversity (the character of existence everywhere) in purely proportional unity, because that is the way beings are. There is no univocity in being: hence there can be no univocity in concepts metaphys-

ically analogous.

5. The many are (exist as) one analogically, inasmuch as all beings, while each is other in its very being, are one in that they all *are* in proportion to their natures. Thus, plurality of being is analogical, as is unity of being. True, any given thing can be one in one sense and many in various non-analogical senses.

6. Everything created is an imitation of the divine Being. But this "imitation" is analogical or proportional. Also, everything "participates in" the divine Being. But this participation itself is analogical or proportional. "Analogy" here — and this *is* metaphysical analogy — simply designates the *mode* of the imitation and the participation.

II

On Mr. Robinson's Comments

5. True, in non-mathematical analogy it is impossible to ascertain the nature of one term from the other three. But metaphysical analogy is not a means of "calculating" or in any way ascertaining the nature of something from the known natures of other things. It is in our minds a way of seeing how things are, not of discovering what they are.

6. Metaphysical analogy is not "trivial," if this adjective implies that it is insignificant or unimportant. As a primary principle of being as well as of thought, metaphysical analogy is no less significantly axiomatic than the principle of identity, since it expresses the way things are, *viz.*, many and diverse in themselves yet proportionally one in existing, actually or possibly. The "fact that some relations have more than one example" may signify that such relations are analogical in the broad sense of being similar or identical; it does not signify that they are metaphysically analogical.

III

On Father Owen's Comments

1. In the analogy, God's essence is to His existence as

the essence of a creature is to its existence, the first two terms, though absolutely identical in reality, have a different "mode of signifying"; they signify God Himself but through different concepts. "A purely logical distinction" — one having no basis whatever in reality — *is* sufficient to found a proportion since it does give us two terms. Such an analogy can be seen in every Thomistic text containing the expression "Deus se habet ad esse"; God is absolutely identical with His act of existing, yet St. Thomas says not infrequently that He is *related to* that act. This analogical use of "habitudo ad esse" *is* found in the text cited from the *De Potentia*.

3. All non-metaphysical analogies are based on concepts intrinsically univocal. (I have tried to show this at length in my book *The Bond of Being*.) The Aristotelian πρὸς ἕν attributions are "basically univocal" in that they involve the use of terms intrinsically and formally univocal, yet they are true analogies (or, if you like, "equivocities") in that they involve *different* relations, or proportions, referentially *one*. (All this is clear, I think, in the light of the full doctrine of St. Thomas on predication "secundum intentionem et non secundum esse.") Diet, exercise, color, are healthy in an analogical (or "intentionally equivocal") sense, but not in virtue of any intrinsic analogy, which alone can be metaphysical. πρὸς ἕν equivocity, in short, is not basically opposed to univocity, for such equivocity is based on an intrinsically univocal term, and is analogical only in the use we make of that term. (St. Thomas does often employ the Aristotelian examples, terminology, and method of explanation in dealing with this analogy, yet there is clear evidence that he knows it is not metaphysical but logical, inasmuch as it exists as an analogy only in the logical operation of predication or attribution; *e.g.*, cf. *De Ver.*, II, 11, and the previous indication in *ST* I, 13, 6, ad 3.) The Aristotelian and Boethian division into the equivocal by chance, by proportion, and by reference, though not incorrect, is metaphysically inadequate since it is not made in terms of or with reference to existence, as St. Thomas' typical division of analogical predication is (*e.g.*, cf. *In I Sent.*, XIX, 5, 2, ad 1).

There is no theoretical reason I can think of why the term "analogy" should not be limited in its use to "equivocity

by proportion," or, as St. Thomas has it, by "proportionality" (incidentally, St. Thomas often uses "equivocal" in your broad Aristotelian-Boethian sense, yet he distinguishes between the purely equivocal — equivocal by chance — and the intentionally equivocal, and limits "analogy" to modes of the intentionally equivocal), *provided only* that the equivocal by chance and by reference are not opposed absolutely to the univocal. For both these equivocals are reduced to univocal principal terms. There are no concepts or terms equivocal by chance; this equivocity consists wholly in the fortuitous *use* of terms "univocal" in themselves or in their proper meanings. Terms and concepts equivocal by reference *only* (and not also by intrinsic proportional participation in being) are univocal in themselves or in their proper meanings. In the non-consideration of this point lies the inadequacy of the Aristotelian doctrine of πολλαχῶς λεγόμενα.

4. True, the proposition "Analogy is rooted in the relation of essence to act of existing" does limit metaphysical analogy to the metaphysics of St. Thomas Aquinas. I mean it restricts thereto adequate metaphysical analogy, because only that metaphysics (I hold) is adequately metaphysical, *i.e.*, equal to the job of coping with being as it is, namely, as distinguished, in the finite, into the really distinct though inseparable principles called essence and act of existing, and as self-subsisting, in the infinite, in the simple identity of essence and act of existing. Of course there are many metaphysics, in the sense of general doctrines of *being*, diverse from and incompatible with this one and with each other. None of them are devoid of all truth; any of them can contain some true metaphysical analogy, some share at least in it. So, for example, I would not say that the metaphysics of Aristotle is not metaphysics, but that it is not adequate metaphysics. And *therefore* I would speak likewise about metaphysical analogy in Aristotle, Duns Scotus, etc. But obviously, where one can only lay down the bare bones of conclusions, all such statements as these needs must have the appearance of extreme arbitrariness.

JAMES F. ANDERSON

University of Notre Dame.

The Review of Metaphysics, Vol. V, No. 3, March 1952.

Discussions

QUESTIONS ON KANT

In the *Review of Metaphysics* for June 1951 [1], Professor George A. Schrader has given us an exquisite article on Kant. The construction of the thought is delightful to follow, and the content is instructive and stimulating. The purpose of this note is not to refute any of the six major contentions listed summarily at the end of Professor Schrader's article, though perhaps slight modifications of the sixth conclusion might be implied; rather the purpose is to question some of the minor points of his argument and to add some minor reflections that may clarify the total picture to a small degree.

On page 520 Schrader says, "So far Kant has established the universality but not the necessity of space and time." The context of this sentence does not seem to alter its sense as quoted in isolation, but for reasons I shall try to develop, it seems to me to be a false statement. Surely Schrader's preceding paragraph does not offer an argument sufficient to establish conclusively the universality of space and time. However, on page 521 Schrader writes, "Kant's arguments in the Aesthetic do not establish that space and time are necessary or even that they are universal for sensible intuition." Just how this latter sentence modifies the former is not the point of interest. Even if the first statement makes a broader impression than Schrader intended, still he goes on to say that Kant did not rest his own case on examples of sense perception in which the awareness of space and time is involved, but in ruling out any possible intuitions which are not spatio-temporal made a far stronger contention which is "in no way based upon inductive argument."

Now, Schrader not only repudiates the psychological interpretation of the forms of intuition, but suggests a realistic rather than an idealistic interpretation of Kant. This inter-

---

[1] George A. Schrader, "The Transcendental Ideality and Empirical Reality of Kant's Space and Time," *The Review of Metaphysics*, IV (1951), 507-36.

pretation merits careful consideration. However, if Kant is to be taken as a realist, then, I wish to submit, his arguments must be based on induction. And if Kant is not to be taken as a realist, still his arguments, as written in the *Critique*, are as a matter of fact inductive. The following four reasons, I believe, at least point toward such a conclusion.

First: Schrader rightly insists that Kant's theory of space and time is not completely put in the Aesthetic. One of the chief values of his article is to impress us with the bearing of widely separated passages on the theory of space and time. For example, though Schrader does not explicitly cite this page, Kant, in the introductory paragraph to the System of All Principles of the Pure Understanding, B 188-189, professes to have done with intuition, even though the argument will make the principles of mathematics and intuition conceivable and will deduce the possibility of such cognitions. And surely, even if we disregard the several hints on the intervening pages, the Axiom of Intuition, B 202-203, which Schrader cites, explicitly concerns intuition. If Kant wants to show that all intuitions are extensive quantities, he perforce discusses space. Adickes notes that the material belongs in the Aesthetic, paragraph 3, *i.e.*, B 40. But unless it be taken as unsupported assertion the material constitutes an inductive argument.

Second: Schrader distinguishes, in the first sentence quoted, between universality and necessity. He then adds, p. 520, "Perhaps one must *know* [italics his] that something is necessary in order to *know* that it is universal, but a thing may be universal without being necessary." Aside from the fact that Kant denies that a thing may be universal without being necessary — see point three below — the main theme raises problems of infinite complexity. If Kant is a realist, at least if he is more of an empiricist than a rationalist, would he not also be a nominalist? But on nominalistic principles, contrary to Schrader's assertion, one would have to know that something was universal before knowing it was necessary. And on realistic, empirical principles experience could never arrive at universality. Hence Kant's arguments must be inductive, and their conclusions no more than a posteriori probabilities.

But perhaps one should not depend too greatly on the thesis that Kant was a realist. Let judgment be suspended on this point. Still, in the *third* place, the idea of necessity in Kant is a stumbling block. Suppose it is true, with Schrader, that one must know necessity before universality. What is necessity and how is it known? In the *Einleitung*, B 3ff, necessity is mentioned as an infallible criterion of the a priori. The knowledge of necessity therefore must precede knowledge of the a priori. One might wonder whether there would be fewer difficulties in a theory that made knowledge of the a priori the condition of knowledge of the necessary. However that may be, if necessity is the criterion of the a priori, one must know the meaning of necessity. Now, much later, in the analysis of the arguments for God's existence, Kant has something to say about necessity. All examples of necessity, he reminds us, are drawn from judgments, not from things. And judgments are necessary when the denial of the predicate forms a contradiction with the subject. But this type of necessity, the ordinary logical necessity of an analytic judgment, is insufficient for Kant's purposes in two respects. The a priori synthetic judgments are necessary, but their necessity cannot be of this analytic type. And also, if we have no idea of what necessity might mean in the case of God, have we any idea of how space, which is also individual, can be necessary? The possibility of a priori synthetic judgments, Schrader insists, depends on the theory of space; but the theory of space requires a type of necessity which Kant either repudiates when discussing the ontological argument or at best leaves entirely unexplained.

Underlying this difficulty there seems to me to be a shifting of Kant's thought between an intensional and an extensional logic. As an empirical opponent of dogmatic rationalism, his universality and necessity, which, contrary to Schrader's statement above, "gehoren auch unzertrennlich zu einander," B 4, should be the probable results of induction; but as an apriorist he needs a more necessary necessity.

In the *fourth* place, and connected with the difficulties in logic, Kant makes space a pure intuition. He never tires of repudiating intellectual intuition. Intellectual intuition might

have given him the necessity and the intensional logic he needed; but in its place he puts the pure sensory intuition of space and time. Schrader, page 528, asserts, "I have suggested that space and time are given in intuition and I mean to insist that they are, in this regard, on the same level empirically with intuited data." The most apparent sense of these somewhat ambiguous words is difficult to accept, for no one has seen space as he has seen color. Space and color are not, obviously, on the same level in every regard. They are not on the same level with regard to being given in intuition. The color seen is seen in its totality, but the infinity of that individual which is space forever prevents it from being thus given in intuition. If space were given in intuition on the same empirical level with color, then surely Kant's four points in the Aesthetic, B 38-40, would have to be altered beyond recognition. At any rate perhaps it will be granted that Kant's theory of pure sensory intuition is not easy to conceive. In fact, could we not say that a pure sensory intuition is more vague than an intellectual intuition is doubtful?

In conclusion, the real trouble in expounding Kant is that he is hopelessly self-contradictory. Schrader, to maintain some of his assertions, is quite aware of the fact that he must discount or delete certain portions of Kant. In fact Schrader seems to rely more on the earlier than on the later sections. Kant's views were developing as he wrote; the final introductory paragraphs by which he pieced together his earlier papers do not always, in fact usually do not, present the same theory as the sections they introduce. The earlier sections are richly suggestive, for example the Transcendental Deduction; but we are not justified in pointing to such sections as definitive Kantianism. Are they indeed anything more than a passing phase of a mind that never came to rest?

GORDON H. CLARK

Butler University.

Reply to Mr. Clark

In his discussion of my article on Kant's theory of space and time Mr. Clark has raised several important points which deserve to be answered. To deal with them adequately would require considerable elaboration of the original essay. I shall attempt, in brief compass, to consider two or three of the central points raised by Mr. Clark.

Mr. Clark argues that if Kant is to be interpreted as a realist his theory of space and time must be based on inductive argument. In support of this contention he suggests that a realist must be a nominalist and, hence, can legitimately advance only inductive arguments in support of his doctrines. But Mr. Clark goes further than this. He states that "if Kant is not to be taken as a realist, still his arguments, as written in the *Critique*, are as a matter of fact inductive." I am not sure in what sense Mr. Clark is using the term "realist" here. I fail to see that realism necessarily implies nominalism or, for that matter, that even an inductive argument is possible for a thoroughgoing nominalist. But this point is not particularly important for the discussion of Kant's views since Kant is an idealist as well as a realist. In my article I attempted to stress the realistic side of Kant's theory. But I did not mean to argue that his position can be construed as exclusively realistic. Kant characterizes his theory as maintaining at once the "empirical reality and transcendental ideality" of space and time. His formal idealism was expressly designed to provide an escape from nominalism and to make possible a non-inductive or "transcendental" method of proof. Kant would agree with Mr. Clark that if space and time are regarded as things-in-themselves we can have no a priori knowledge of them. Space and time are real for Kant, but only as forms of appearances. I did not mean to obscure the idealistic feature of space and time, but only to stress the fact that Kant did not regard them as psychologically ideal. Mr. Clark mistakenly concludes that Kant's doctrine must be either realistic or idealistic but not both.

There are passages in the *Critique* which, as I have pointed out, seem to be based on inductive argument. This is especially

true of certain passages in the "metaphysical exposition" of space and time as presented in the Aesthetic. But the "transcendental exposition" is clearly not based upon an inductive argument. In the latter portion of the Aesthetic Kant argues that geometry exhibits a priori knowledge of space and that this knowledge can be explained only if space is an a priori form of intuition and, further, itself an a priori intuition. But the argument of the Aesthetic is provisional and can be properly understood only in the light of Kant's fuller elaboration of his views in the Analytic. In suggesting that Kant's arguments in the *Critique* are "in fact inductive" Mr. Clark fails to grasp the unique method of discovery and justification of a priori principles which underlies and supports the entire argument of the *Critique*. The "deduction" or justification of the objective validity of space and time consists in showing that they are necessary formal conditions of the possibility of experience. If Kant is correct in the views which he supports in the *Critique*, it would be impossible in principle to validate any theory of space and time inductively, since certain presuppositions about the nature of space and time are required for the possibility of any inductive argument. Any inductive argument presupposes the truth of the causal axiom, which is synthetic a priori and depends for its validity upon the fact that it is an a priori determination of time. Every empirical judgment involves the determination of space and/or time. Such judgments can have objective validity only because we have a priori knowledge of the time and space which is determined in the judgment. From Kant's point of view it would be utterly foolish to attempt to arrive at the essential nature of time and space by generalizing from experience. There would be no ground for any empirical judgments on which such an inductive argument might be based.

In calling attention to Kant's rejection of the ontological argument on the ground that we can have no conception of the absolute necessity of any being, Mr. Clark points out that space and time cannot be regarded as ontologically necessary. This is quite true. Kant is not claiming a privileged status for space and time. In fact he expressly repudiates such a doctrine in denying that space and time are absolute. Space and time

are neither ontologically nor psychologically necessary. Ontological necessity cannot be maintained, as Mr. Clark has correctly indicated, and pyschological necessity would be too weak to provide a basis for a priori knowledge. Kant attempts to show that space and time are "transcendentally necessary" as indispensable conditions for possible experience. As such they are ontologically contingent. It is only with respect to experience that their necessity can be exhibited.

In addition to their necessity as forms for the manifold of sensation they have, also, a kind of internal necessity. That is, we can understand that space and time could not be other than what they are. But this does not violate the strictures of the ontological argument. Kant is not attempting to demonstrate that space and time must exist. Ontologically, space and time, and experience itself for that matter, are strictly contingent. It is only within experience, taken as including both form and content, that we find any necessity. In suggesting that Kant either grants space and time a kind of necessity repudiated in the criticism of the ontological argument or "leaves them entirely unexplained" Mr. Clark overlooks Kant's painstaking attempt to provide a justification for the *transcendental necessity* of space and time as conditions required for the possibility of experience. In defending this limited sort of necessity Kant seeks to avoid the dogmatism of the rationalists as well as the skepticism of the empiricists.

Mr. Clark objects to the fact that I have separated universality and necessity as criteria of *a priority* in Kant. It is true that Kant asserts that they are both required to certify the *a priority* of any form or principle. But he also states that either universality or necessity is a sufficient test of *a priority*. I did not wish to make much of this point in my article. However, I still fail to see how universality can serve as a criterion of *a priority* unless it involves a concealed reference to necessity. I can certainly conceive of universal characteristics of experience which might not be necessary. Apparently Kant did not think this was possible, which leads me to believe that for him nothing could be universal to experience which was not in fact necessary. One could, of course, show that something was not necessary by showing that it was not

universally true in experience. But I fail to see how one could know that something is universal in experience without knowing that it is necessary. I am willing to grant that something might be universal without being necessary, but this is not the point at issue. In any case Kant invariably argues from necessity to *a priority* and it is with the proof of the necessity of a priori principles that he is primarily concerned in the *Critique*. The universality of a priori forms and principles follows logically from their necessity.

I am afraid that I cannot agree with Mr. Clark's view that Kant's theory of space and time is "hopelessly self-contradictory." Although on the surface it appears to be confused and inconsistent, the more I work at it the more I am convinced that Kant has formulated a theory of space and time which, though intricate and highly complex, is not only consistent and coherent but plausible. I do not believe that I have relied primarily on the earlier sections of the *Critique* in interpreting Kant's views, as Mr. Clark suggests. If anything, I may have relied too heavily on the Analytic in attempting to interpret the Aesthetic.

GEORGE A. SCHRADER

Yale University.

The Review of Metaphysics, Vol. V, No. 3. March 1952.

Notes and Observations

SOME HIGHLIGHTS OF MODERN COSMOLOGY AND COSMOGONY

> . . . It is in itself, however, an advance of fundamental importance that the whole cosmological problem, including the question "Is space finite?" has been brought into the sphere of the exact reasoning of natural science.

This is the concluding note of E. Finlay-Freundlich's "Cosmology," which was published in 1951 as volume I, No. 8 in the *International Encyclopedia of Unified Science* by the University of Chicago Press.[1] A brief survey of the recent literature is intended to enable the reader to examine some of the evidence which supports Freundlich's statement.

One of the more important cosmological consequences of Einstein's general theory of relativity is the hypothesis that our universe may either expand or contract with time.[2] Relativistic *cosmogony* is concerned with those phases of this process which belong to the past. We begin with a digest of cosmogonic developments.

Shortly before 1930, it was the consensus among astronomers that our universe of stars and galaxies had existed in essentially its present form for *at least one thousand times* the then accepted value for the age of the solar system (three thousand million years).[3] A drastic revision in this estimate had to be considered, however, when Hubble and others observed that the lines in the spectra produced by the light from distant galaxies was displaced to the red. This "red shift" was attributed to the mutual recession of the stellar light sources producing these spectra. A correlation of previously determined distances of the star-systems with the red shifts in

---

[1] Freundlich has previously written a work for the general reader, entitled *The Foundations of Einstein's Theory of Gravitation*, tr. H. L. Brose (London and New York, 1922).

[2] Cf. R. C. Tolman, *Relativity, Thermodynamics and Cosmology* (Oxford, 1946), Chapter X, Part II.

[3] Cf. J. H. Jeans, *Astronomy and Cosmogony* (Cambridge, 1929), p. 381.

their spectra yielded the interesting result that these galaxies are receding with speeds proportional to their distances from us. This law of the general expansion of the universe was then used to ascertain the past locations of the various galaxies at given times (by assuming that each of the galaxies has been maintaining its velocity), with the result that about two thousand million years ago, all of them seem to have been close together. The replacement of the "long" time-scale by the "short" time-scale was required not only by the presumed facts of the general expansion but also by the convergence of several other independent lines of evidence.[4] The upshot of the available evidence seems to be that about 2×10^9 or 3×10^9 years ago, a cosmic catastrophe took place, which initiated our "present epoch," i.e., the period of evolution of the astronomical universe as we now know it. Gamow has advanced a detailed hypothesis depicting the present structure of the world as the outcome of a process in which rapidly expanding primordial matter underwent differentiation.[5]

This hypothesis suggests several questions: What knowledge do we have concerning (a) the character and state of

---

[4] For details, see B. J. Bok, *Harvard Circular*, No. 384 (1934), *Observatory 59*, 76 (1936), and *Monthly Notices of the Royal Astronomical Society 106*, 61 (1946); A. Unsöld, *Zeits. f. Astrophys. 24*, 278 (1948); R. C. Tolman, *Reviews of Modern Physics* 21, 374 (1949). The arguments currently believed to support the short time-scale can be divided into several groups: (a) expansion of the universe; dynamics of clusters of galaxies; (b) dynamics of star clusters; (c) statistics of wide binaries, equipartition of kinetic energy in the Milky Way; (d) stellar energy; and (e) composition of meteoritic and terrestrial material. For a summary, see D. Ter Haar, *Reviews of Mod. Physics 22* (1950), pp. 124-126. Details on the meteoritic and terrestrial evidence can be found in F. E. Zeuner, *Dating the Past*, 2nd ed. (London, 1950), Chapter X; W. M. Smart, *The Origin of the Earth* (Cambridge, 1951); *Bulletin of the National Research Council on the Age of the Earth*, No. 80 (1931); A. Holmes, *Endeavor* (July, 1947), *Nature 157*, 680 (1946) and *Nature 159*, 127 (1947); F. Paneth *et al.*, *Nature 149*, 235 (1942); C. A. Bauer, *Phys. Rev. 72*, 354 (1947).

[5] G. Gamow, "On Relativistic Cosmogony," *Reviews of Modern Physics 21*, 367 (1949) and "The Origin and Evolution of the Universe," *American Scientist 39*, 393 (1951). Gamow has also promised a book, *Creation of the Universe*, to be published in 1952 by the Viking Press, New York.

this primordial matter and (b) the process of successive differentiations which the latter underwent during the rapid expansion? What prognosis can be made regarding future evolution? What was the state of this "primordial matter" *prior to* the state of maximum contraction and subsequent expansion? How was the process of expansion initiated?

Gamow offers to shed light on both parts of the first of these questions. He presents a theory of the origin of atomic species from a highly compressed hot aggregate of primordial neutrons and protons [6] as well as an hypothesis regarding the evolution of galaxies and stars, which was subsequent to the formation of atomic species.[7] To explain the subsequent evolu-

---

[6] See Gamow, "On Relativistic Cosmogony," *op. cit.*, pp. 369-371 and "The Origin and Evolution of the Universe," *op. cit.*, pp. 397-401. The substance of the theory of Gamow and of his collaborators is that the observed abundances of the chemical elements are the result of a dynamical building-up process which was arrested by the rapid expansion of the universe and which did not exceed about one half hour! This so-called "non-equilibrium theory" and its variants are rivaled by a group of theories known as the "equilibrium theories." According to the latter, the formation of the chemical elements was a *slow* process in which the heavier elements were the products of nuclear transmutation of the primordial hydrogen composing large stars which have since exploded as a result of hydrogen exhaustion. The explosions of these stars were responsible for distributing the atomic species in space.

For an excellent and exceptionally thorough discussion of the various current "equilibrium theories" and "non-equilibrium theories" concerning the origin of the elements and of their isotopes, see R. A. Alpher and R. C. Herman, "Theory of the Origin and Relative Abundance Distribution of the Elements," *Reviews of Modern Physics 22*, 153 (1950). This valuable paper contains a bibliography of 180 references. For a more recent treatment by the same authors, see *Phys. Rev. 84*, 60 (1951). See also D. Ter Haar, "Cosmogonical Problems and Stellar Energy," *op. cit.*, pp. 134-142. This article likewise has a very useful bibliography. Also useful are H. C. Urey, "Cosmic Abundances of the Elements and the Chemical Composition of the Solar System," *Am. Scientist 39*, 590 (1951); and *The Planets — Their Origin and Development*, to be published in 1952 by the Yale University Press.

[7] Cf. Gamow, "On Relativistic Cosmogony," *op. cit.*, pp. 371-373 and "The Origin and Evolution of the Universe," *op. cit.*, pp. 401-403; Ter Haar, "Cosmological Problems and Stellar Energy," *op. cit.*, pp. 129-130.

tion of the planetary system. von Weizsäcker has recently published a theory which is essentially a rehabilitation of the Kant-Laplace nebular hypothesis.[8] The Weizsäcker theory brings the Copernican repudiation of homocentrism to a fitting climax by entailing that

> ... the formation of planets should be an extremely common occurrence. Possibly in the process of formation of *every* star the conditions would be correct to form planets. Thus we might expect billions, if not hundreds of billions, of planets in our galaxy, the strong likelihood that life has developed on a million or more of these, the high probability that there are other civilizations of mankind, and even the possibility that men on other planets are writing articles on the origins of their solar system.[9]

Gamow claims[10] that the "rejuvenated Kant-Laplace theory" recently "found confirmation in the actual discovery of planetary systems near two close stars." It would seem, however, that Gamow's claim should be modified in the light of (a) G. P. Kuiper's important criticism of von Weizsäcker's theory,[11] (b) the inconclusiveness of the observational evidence employed to infer that the nearby stars in question have unseen planetary companions.[12]

---

[8] Cf. Carl von Weizsäcker, "Über die Entstehung des Planetensystems," *Zeitschrift für Astrophysik 22*, 319 (1944), *Naturwiss. 33*, 8 (1946) and *Zeitschr. f. Astrophysik 24*, 181 (1947). For accounts by other authors, see G. Gamow and J. A. Hynek, *Astrophys. Journal 101*, 249 (1945); S. Chandrasekhar, *Rev. Mod. Phys.* 18, 94 (1946); Ter Haar, *Science 107*, 405 (1948) and *Kgl. Danske Vid. Sels. Mat.-Fys. Medd. 25*, No. 3; T. Page, "The Origin of the Earth," *Physics Today 1*, 12 (1948). For Kant's statement of his nebular hypothesis of 1755, see I. Kant, *Werke*, ed. E. Cassirer (Berlin, 1912), I, 219-370. Laplace's version can be found in his *Exposition du système du monde* (Paris, 1796).

[9] T. Page, *op. cit.*, p. 21.

[10] Gamow, "The Origin and Evolution of the Universe," *op. cit.*, p. 404.

[11] See *Astrophysics: A Topical Symposium*, ed. J. A. Hynek, (New York, 1951) Chapter 8, esp. pp. 366, 368, and 372-375.

[12] K. A. Strand investigated the orbital motion of a nearby double star (61 Cygni) and found perturbations in the motion which *may* be explained by the presence of an unseen companion of low enough mass to be a heavy planet rather than a faint star (Cf. K. A. Strand, "The Orbital Motion of 61 Cygni," *Proc. Am. Phil. Soc. 86*, 364 (1943), and "The

Both F. Hoyle and P. Jordan, whose theories will receive mention below, have emphasized [13] that the one fact crucially relevant to answering the question regarding the future evolution of the expanding universe is the dependence of star light on the *irreversible* nuclear conversion of hydrogen fuel into helium and higher elements. Thus our sun's existence like that of all the other stars will be terminated by the exhaustion of its hydrogen fuel. Calculations show that the life span of our sun is 50 billion years of which about 2 billion years have elapsed. The Cepheid variables, novæ and supernovæ detected by observational astronomy are stars which already have spent the bulk of their hydrogen and are thereby coming to an end. Such is the future destiny of stellar evolution within each of the receding galaxies. It would seem therefore that from a long-range temporal point of view, the future role of man is only trivially a function of biological principles and overwhelmingly dependent upon the career of inanimate cosmic matter.[14] Teleologists would therefore do well to pursue their

---

Astrometric Study of Unseen Companions in Double Stars," *Astr. Journal 51,* 12 (1944-1946).) See also the very interesting studies by P. van de Kamp "The Astrometric Study of Unseen Companions of Single Stars," *Astr. Journal 51,* 7 (1944-1946), "Note on the Photographic Determination of Stellar Masses." *Astr. Journal 51,* 161 (1944-1946), "Les Compagnons Invisibles d'Étoiles Proches," Address to the *Assemblée Générale de la Société Astronomique de France, Dec. 11, 1949* (Orléans, 1951) and "Stars or Planets," *Sky and Telescope 4,* No. 2 (Dec., 1944). Also, cf. H. N. Russell, "Planet Companions," *Scientific American 168,* 260 (1943). Professor van de Kamp, Director of the Sproul Observatory, has written me that, "Gamow's reference to the 'actual discovery of planetary systems near two close stars' goes too far. There are several spurious results in the literature, and even the perturbation of 61 Cygni cannot be given a definitive interpretation."

[13] Cf. F. Hoyle, "Stellar Evolution and the Expanding Universe," *Nature 163,* 197 (1949) and P. Jordan, "Neuere Gesichtspunkte der kosmologischen Theorienbildung," *Philosophisches Jahrbuch 61,* 10 (1951).

[14] Additional support for this statement has recently been given on the basis of the second law of thermodynamics by H. F. Blum in *Time's Arrow and Evolution* (Princeton, 1950). On the other hand, new arguments have also been forthcoming against the validity of this law for the universe as a whole. Thus K. P. Stanyukovic has given set-theoretical

patient search for a cosmic purpose in the turbulency of this matter rather than among the ephemeral animate excrescences which this turbulency only fleetingly sustains.

The late English mathematician E. A. Milne has developed a philosophically very interesting theory in which he deals explicitly with our question regarding the state of the world before the onset of the expansion.[15] This important theory calls for both presentation and criticism.

---

arguments ("On the Increase of Entropy in an Infinite Universe," *Doklady, Akad. Nauk. SSSR, N. S. 69,* 793 (1949) [in Russian]) to support the view that the second law of thermodynamics is not applicable to an infinite universe provided that the latter contains denumerably infinite types of atoms, molecules or stars. (See summary by L. Tisza, *Mathematical Reviews 12,* 787 [1951]). For additional doubts about the validity of the entropy principle for the universe as a whole, see E. A. Milne, *Kinematic Relativity* (Oxford, 1948), p. 233.

[15] Milne wrote prolifically on this and other subjects of philosophical importance before his recent untimely death. See his *Relativity, Gravitation and World-Structure* (Oxford, 1935), pp. 83 and 134-140, *Kinematic Relativity* (Oxford, 1948), pp. 37 and 221-223, "Kinematics, Dynamics and the Scale of Time," *Proc. Roy. Soc.,* Part I, *158, A,* 324 (1937), Part II, *159,* A, 171 (1937), Part III, *159,* A, 526 (1937), "Remarks on the Philosophical Status of Physics," *Philosophy 16,* 1 (Oct., 1941), "The Ideas of Kinematic Relativity," *Phil. Mag. 34,* 82 (Feb., 1943), "The Fundamental Concepts of Natural Philosophy," *Proc. Roy. Soc. Edinb. 62,* 10 (1943), Presidential Address to the Royal Astronomical Society, April 14, 1944, *Monthly Notices of the Roy. Astr. Soc. 104,* 120 (1944) and "Gravitation without General Relativity," *Albert Einstein: Philosopher-Scientist* (Evanston, 1949), pp. 409-435. For brief, elementary summaries of Milne's treatment of the red shift, see T. Page, *op. cit.,* pp. 23-24 and M. Johnson, "The Meanings of Time and Space in Philosophies of Science," *American Scientist 39,* 416 (1951).

General discussions of Milne's theory of relativity and of related philosophical issues (containing further bibliographies) are: R. S. Cohen, "Epistemology and Cosmology: E. A. Milne's Theory of Relativity," this journal, *3,* 385 (1950); M. Johnson, *Time, Knowledge, and the Nebulae* (New York, 1947); A. Grünbaum, "Relativity and the Atomicity of Becoming," this journal, *4* (1950), pp. 164-165; G. J. Whitrow, *The Structure of the Universe* (New York, 1950) and "On the Foundations of Dynamics," which appeared in the new *British Journal for the Philosophy of Science 1,* 92 (Aug., 1950).

Einstein's work had led to the enunciation of the principle of covariance, which asserts that the general laws of physics can be expressed in a form which is independent of the choice of space-time coordinates (reference frame).[16] Milne diverges from Einstein's application of this principle[17] and asserts instead his "cosmological principle" to the effect that the view of the entire universe obtained from one spiral nebula is the same as the view from any other. On the basis of his application of this cosmological principle, Milne argues that if we noted the number of revolutions of an electron in a stationary orbit around an atomic nucleus during the time required by the earth to rotate once around its own axis (24 hours), we would find that this number is *not* the same as the number that would have been observed many years ago (these years being measured by the earth's revolution around the sun). In fact, what we would find, he says, is that the number of electron revolutions per unit of time kept by the earth's rotation or by a pendulum clock is *greater* now than it was a very long time ago. It follows that a clock which keeps the time of the earth's rotation will report that a revolution of the planetary electron in an hydrogen atom takes *less* time now than it took many years ago. Furthermore, we know from the Bohr theory[18] that the number of vibrations (fre-

---

[16] This key principle in the theory of *relativity* is one of the prominent *absolutes* of that theory.

[17] A *detailed* evaluative analysis of the differences between Milne and Einstein and of Whitehead's differences from Einstein, has yet to be carried out. Suffice it to say that Milne writes provocatively (p. 121 of his Presidential Address, mentioned in fn. 15): "Wonderful as this theory [Einstein's general theory of relativity] is in many ways, we must not let ourselves be blinded to its shortcomings. It is a good rule that however well a theory appears to fit the facts, it cannot be accepted as satisfactory if it is not *philosophically* satisfactory." For his criteria of philosophical acceptability, see his "The Fundamental Concepts of Natural Philosophy," *op. cit.* For Einstein's views, see A. Einstein, *The Meaning of Relativity* (Princeton, 1946) Appendix "On the 'Cosmologic Problem'" and H. P. Robertson, "On the Present State of Relativistic Cosmology," *Proc. Am. Phil. Soc. 93*, 527 (1949).

[18] For details, see N. Bohr, *Les Spectres et la Structure de l'Atome*, tr. from Danish manuscript by A. Corvisy (Paris, 1923), p. 19, or L.

quency) of the light emitted by a radiating atom is the *same* (for sufficiently long wave lengths) as the number of revolutions of the planetary electron in its stationary orbit around the nucleus.[19] Since the wave length of light is inversely proportional to its frequency, it follows that if we use the earth's rotation as a time standard, the light emitted in the distant spiral nebulæ by atoms of various kinds of substances a long time ago was of *longer* wave length than light now emitted by similar atoms in our laboratories. This result obtains because the planetary electrons were executing comparatively *fewer* revolutions in emitting the light now arriving from the distant nebulæ. Thus if we base our description of the world on the dynamical-time or clock-time kept by the earth, planets and pendulum clocks, then it is not surprising that light received from distant nebulæ exhibits the red shift. For this light was emitted many years ago from atoms whose planetary electrons were slow. In terms of a description based on dynamical time, the universe is not expanding but "static," *i.e.*, no large-scale changes occur in the distribution of matter for an infinite past and future despite such "local" motions of celestial bodies as the orbital motion of the planets around the sun.[20] Despite the lack of concordance between readings of "dynamical time" and the readings of "atomic time" which are furnished by vibrating atoms or radioactive decay processes, there seems to be no epistemological reason for supposing that a description of the world based on "dynamical time" is more *true* than one based on "atomic time."[21] Thus the lack of

---

Page, *Introduction to Theoretical Physics*, 2nd ed. (New York, 1935), p. 627.

[19] On the classical electromagnetic theory, the frequency of the radiation emitted by an oscillating electron is identical with the dynamical frequency of its motion.

[20] By a "static world," cosmologists mean a world whose mean density of matter remains constant when referred to a sufficiently large interval of space and time.

[21] The temporal metric is based on three coordinative definitions which are ***arbitrary***: the first concerns the unit of time and determines what numbers will be assigned to given time intervals; the second concerns

synchronism between "dynamical time" and "atomic time" does not mitigate against using either of these two time-scales and obtaining *equivalent descriptions* of the world.[22] And Milne tells us that if we based our time metric on atomic vibrations (or radioactive decay periods), then the resulting frequency of an atom would be constant, and it would follow that the universe started to expand 3 billion *atomic* years ago. At this point, Milne makes a far-reaching theological claim *on the basis of the mathematical relationship between the two time scales,* which is

$$T = t_0 \log \left(\frac{t}{t_0}\right) + t_0$$

In this equation,[23] T is the time on the "dynamical scale," t the time on the "atomic scale," and t_0 is an arbitrary constant so chosen as to (a) make t and T agree at $t = t_0$ and (b) make the rates agree near $t = t_0$. We note that for $t = 0$, T is *not defined* by this relation and that when t approaches 0, T decreases indefinitely (algebraically). Milne states these mathematical facts rather elliptically by saying that "$t = 0$ corresponds to $T = -\infty$"[24] and then surprisingly draws the far-reaching inference that the physical world could not have existed *prior* to the beginning of the expansion at $t = 0$ (i.e., for *negative* values of t). He writes:

> ... in phenomena customarily described on the t-scale only an amount of time up to a certain value of t will be available. ...[25]
>
> ... For it is an essential feature of the theory that every equation in it makes explicit reference, by mention of the age t reckoned from the natural origin of time, to the creation of the system *in time*. The natural zero of time is in fact the epoch of this creation. Every assertion about the contents of the system involves the mention of

---

isochronism or uniformity of successive time intervals; the third concerns simultaneity and determines comparisons between time intervals at spatially separated points.

[22] Cf. Milne, *Kinematic Relativity, op. cit.*, p. 224, § 253.

[23] Cf. Milne, "The Ideas of Kinematic Relativity," *op. cit.*, pp. 97-98, Presidential Address, *op. cit.*, p. 134, "Cosmological Theories," *The Astrophysical Journal 91* (1940), esp. pp. 157-158.

[24] Milne, *Kinematic Relativity, op. cit.*, p. 37.

[25] *Ibid.*, p. 225.

> this age t, and so takes note of the circumstance that the system was once *created*. This is the first definite point of departure from contemporary physics and from Einstein's theory of relativity. Contemporary physics takes the universe as given, and however far it traces backwards the past history of the universe, it has always a still infinite tract of time behind that, at its disposal. Contemporary physics is of course accustomed to assign a period of two to three thousand million years as the age of the universe, but the mere assigning of this period is a self-stultifying action unless it really means that *time*, as we understand it, *was not*, before then. Thus contemporary physics suffers from an inherent internal contradiction in using simultaneously a time variable capable of infinite negative values and a definite value of that time variable as being the epoch of the beginning of things.[26]
>
> ... It is, however, undesirable to attempt to describe the state of things *at* t = 0, for such a state of things must necessarily transcend ordinary experience; we can only hope to describe the state of things *after* t = 0.[27]
>
> ... relationships, containing ... mention of the epoch t to which they refer, bear witness to the creation of the world in time, taking due account of the actual origin of things. ...[28]

Finally, Milne tells us: "The present essay... has nowhere mentioned God. ... But our picture is incomplete without Him." [29]

Milne has argued that t = 0 marks an absolute beginning or creation in the expanding universe on grounds which T. Page has summarized by saying that "one could hardly expect *more* than infinite time on the clock [T-] scale." [30] *This argument, however, is singularly unconvincing to me, for it is a mathematical fact that the concept "more" cannot be applied in this finitary fashion either to the syncategorematic sign "$-\infty$" or to the transfinite cardinal $\aleph_0$, neither of which are possible values of* T. Even if one grants that Milne's derivation of the time-scale relation between T and t is entirely unobjectionable, one can still maintain, as I do, that this relation does not preclude the existence of matter at times corresponding to negative

---

[26] *Ibid.*, p. 222.
[27] *Idem.*
[28] *Ibid.*, p. 232.
[29] *Ibid.*, p. 233.
[30] T. Page, *op. cit.*, p. 24.

values of t, *i.e., prior* to the onset of the expansion characterizing the present epoch. Thus one can readily grant that Milne's time scale relation gives no *mathematical* (metrical) information for values of $t \leqslant 0$ and accept this relation, while asserting that for $t \leqslant 0$ the latter leaves *open* the *physical* problem of describing the then prevailing state of the world.[31] We must conclude that Milne has *not* been successful here in his critique of classical physics and relativity theory both of which allow for an infinite past.

While declining to follow Milne and others in interpreting the logarithmic time-scale relation as evidence for creation *ex nihilo* of the expanding universe, the English biologist J.B.S. Haldane has carried Milne's cosmology further with reference to quantum theory by suggesting how galaxies, stars, and the solar system may actually have originated.[32]

An interesting interpretation of the difficulty concerning the "zero" of the expansion process is given by Canon Georges Lemaître in his book *The Primeval Atom* (New York, 1950) and in his contribution to the Einstein volume in The Library of Living Philosophers.[33] Lemaître uses a radical methodological operationism to reach a conclusion consistent with Catholic theology. He explains that when the universe existed in its highly contracted state as a "primeval atom," there were no material entities moving relatively to each other. Hence he argues that no operational meaning can be assigned to a temporal order at that point, and thus he would have us

---

[31] This physical problem involves the question of providing a physical (operational) criterion for ordering events as being *before* $t = 0$.

[32] J. B. S. Haldane, "A Quantum Theory of the Origin of the Solar System," *Nature 155*, 133 (1945) and "A New Theory of the Past," *Am. Scientist 33*, 129 (1945); T. Page, *op. cit.*, p. 24; and R. S. Cohen, *op. cit.*, p. 404, n. 26.

[33] G. E. Lemaître, "The Cosmological Constant," *Albert Einstein: Philosopher-Scientist*, (Evanston, 1949), pp. 439-456. See also Carlton W. Berenda, "Notes on Lemaître's Cosmogony," *The Journal of Philosophy 48*, 338 (May, 1951); G. E. Lemaître, "Cosmological Application of Relativity," *Rev. Mod. Phys. 21*, 357 (July, 1949); and A. Neuhäusler, "Die Kosmologie von Lemaître," *Phil. Jahrbuch 61*, 1 (1951).

abstain from asking what the state of the universe was prior to some two billion years ago.[34] Presumably Lemaître interprets this operational fiasco to be compatible with the theological belief that the universe was then created *ex nihilo*. Though not committing himself to the construction of a theological superstructure to supplant an avowed operational *ignorabimus*, Gamow endorses such an *ignorabimus*. He writes:

> ... Mathematically we may say that the observed expansion of the universe is nothing but the bouncing back which resulted from a collapse prior to the zero point of time a few billion years ago. Physically, however, there is no sense in speaking about that "prehistoric state" of the universe, since indeed during the stage of maximum compression everything was squeezed into the pulp, or rather into ylem, and no information could have been left from the earlier time if there ever was one.[35]

The difficulties encountered in giving a unified and consistent theoretical explanation of the red shift and of other observational findings pertaining to its interpretation have led to the suggestion that this shift results *not* from a mutual recession of the galactic nebulae but from some unknown but highly important physical law in accordance with which the frequency of a photon would change with time.[36] This suggestion has not borne fruit so far. But a group of cosmological theories which are at least as startling and which embody revolutionary departures from prior physical thought have been elaborated in some detail by P.A.M. Dirac,[37] P. Jordan,[38] H.

---

[34] Cf. G. E. Lemaître, "The Cosmological Constant," *op. cit.*, p. 453. For a critical note relating to this view of Lemaître's, see C. W. Berenda, *op. cit.*, pp. 340-341.

[35] Gamow, "The Origin and Evolution of the Universe," *op. cit.* pp. 405-406.

[36] Cf. F. Zwicky, *Proc. Nat. Acad. 15,* 773 (1929).

[37] P. A. M. Dirac, *Nature 139,* 323 and 1001 (1937), and *Proc. Roy. Soc. A 165,* 199 (1938). See also E. Teller, *Phys. Rev. 73,* 801 (1948) and D. Ter Haar, "Cosmological Problems and Stellar Energy," *op. cit.*, p. 130, fn.

[38] P. Jordan, *Naturw. 26,* 417 (1938), *Physik. Zeits. 45,* 183 (1944), *Physik. Zeits. 45,* 233 and 332 (1945), *Die Herkunft der Sterne* (Stuttgart, 1947), *Astr. Nachr. 276,* 193 (1948), *Acta Physica Austriaca 2,* 356 (1949), *Akad. d. Wiss. u. d. Lit.* (1950), Nr. 11, and *Phil. Jahrbuch 61,* 8 (1951). A book, *Schwerkraft und Weltall,* will shortly appear in Braunschweig.

Bondi and T. Gold,[39] and F. Hoyle.[40] This group of theories is sometimes referred to as "the new cosmology." [41]

Dirac reasoned somewhat as follows: [42] Coulomb's law of force between electric charges at rest tells us that the qualitative dimensions of the square of the charge e of the electron are given by the product of mass and volume divided by the square of time. It follows that if m is the mass of an electron and c the velocity of light, the quantity $\frac{e^2}{mc^2}$ will have the dimensions of a length λ_0, and the quantity $\frac{e^2}{mc^3}$ will have the dimensions of a time τ'_0. Accordingly, we consider $\lambda_0 = \frac{e^2}{mc^2}$ and $\tau'_0 = \frac{e^2}{mc^3}$. Upon expressing the age τ of the universe, which we can take as 3×10^9 years, in terms of the unit of time τ_0, we obtain a *dimensionless* number $N_1 = \frac{\tau}{\tau_0} = 10^{39}$. Dirac is then struck by the fact that we obtain a dimensionless number N_2 of the same order of magnitude when we form the ratio of the electric Coulomb force and the gravitational force between an electron and a proton.[43] Upon considering other constants of nature, including astronomical ones as well as additional atomic ones, and forming dimensionless numbers from them, Dirac notes further that instead of being scattered in a random way, these dimensionless numbers are distributed in clusters in the neighborhood of 10^3, 10^{39} as above, and 10^{78}. *At this point, he introduces the hypothesis that this clustering of the above*

---

[39] H. Bondi and T. Gold, *Mon. Not. Roy. Astr. Soc. 108*, 252 (1948).

[40] F. Hoyle, *Mon. Not. Roy. Astr. Soc. 108*, 372 (1948), *Nature 163*, 196 (1949), and *The Nature of the Universe* (New York, 1951).

[41] Cf. M. Johnson, *Am. Scientist 39* (1951), pp. 417-418 and O. Heckmann, "Theorie und Erfahrung in der Kosmologie," *Naturwiss. 38*, 84 (1951), and *Theorien der Kosmologie* (Berlin, 1942).

[42] Cf. D. Ter Haar, "Cosmogonical Problems and Stellar Energy," *op. cit.*, p. 130.

[43] For this ratio, one obtains $N_2 = \frac{e^2/r^2}{\gamma m M_p/r^2} = \frac{e^2}{\gamma m M_p} = 2 \times 10^{39}$, where M_p is the mass of the proton.

dimensionless numbers will hold for all time on the grounds that "Such a coincidence we may presume is due to some deep connexion in Nature between cosmology and atomic theory."[44] But if this clustering is to be preserved for all time, then it follows that should *any* member of a given cluster of numbers vary with the passage of great intervals of time, it becomes necessary for *all* the other numbers to vary so as to keep pace. Thus, for example, since the dimensionless number N_1 is proportional to the age τ of the universe, the number N_2 must also be. Inasmuch as N_2 is *inversely* proportional to γ, the supposed "constant" of universal gravitation, it follows at once that the supposed constant γ is no constant at all but *decreases* as the age τ of the universe increases![45] It is evident that this consequence of Dirac's hypothesis, if true, is a result of fundamental significance.

Jordan has developed a theory in which he attempted to accommodate both Dirac's ideas and an extension of Einstein's relativistic principles. This attempt led to the result that *the total mass of the cosmos is increasing with time*.[46] This means that new matter is coming into existence as time goes on. In Jordan's model of the world, the "constant" of gravitation decreases with time (Dirac) while the mass of the world increases. Several billion years ago, the world had an absolute beginning in time.[47] Since Jordan's philosophical inclinations are generally completely positivistic, consistency would demand that he refuse to follow Lemaître in adjoining a theological superstructure to an operational *ignorabimus*. I know of no evidence to think Jordan inconsistent on this point.

---

[44] Dirac, "A New Basis for Cosmology," *Proc. Roy. Soc. A 165*, 201 (1938).

[45] For Milne's argument that Planck's constant h changes with time, see *Kinematic Relativity*, *op. cit.*, p. 231.

[46] Cf. Ter Haar, "Cosmogonical Problems and Stellar Energy," *op. cit.*, *pp.* 130-132.

[47] Cf. Jordan, "Neuere Gesichtspunkte der kosmologischen Theorienbildung," *op. cit.* p. 11, where he writes: "... man muss jenen vergangenen Augenblick mit Weltradius null als einen echten Anfang der Zeit selber ansehen."

Bondi and Gold offer a philosophical analysis as the point of departure for their cosmology. They reason as follows: [48] In order to be able to extrapolate from our local observations both to the distant past and to remote places in space, the uniformities of our local world must be presumed to be independent of time and place of observation. Thus in order to describe the world of far greater mean density which presumably existed earlier during the expansion, and to ascertain its mode of evolution, we must know the laws prevailing in such a more dense universe. From the principle of Mach employed in the general theory of relativity, these authors derive the suggestion that "we cannot have any logical basis for choosing physical laws and constants and assigning to them an existence independent of the structure of the universe." [49] Thus if we are to employ the physical laws ascertained during an almost vanishing fraction of the world's career for making the *temporal* extrapolations involved in cosmological inquiry, then we can do so with rational warrant only if the universe possesses the required temporal invariability of structure. Bondi and Gold do not assert categorically that the latter obtains. They maintain only that the fate of cosmology *as a science* hinges on the truth of the assumption of such stability of structure, an assumption which they call "the perfect cosmological principle." [50] But how can a universe like ours, which seems to be expanding and in which our very existence attests the lack of thermodynamic equilibrium, maintain the constancy of density (and of other physical characteristics) which must obtain if the perfect cosmological principle is to hold, *i.e.*, if cosmology is to be a science? Bondi and Gold boldly give their answer:

---

[48] Bondi and Gold, *op. cit.*

[49] *Ibid.*, p. 253. For a recent elaboration of Eddington's opposing claim that the exact values of the pure numbers which are constants of nature can be derived *a priori*, see E. Whittaker, *Eddington's Principle in the Philosophy of Science* (Cambridge, 1951). This small book has been reprinted as an article in the *Am. Scientist 40*, 45 (1952). Strong criticisms of Eddington's thesis can be found in P. Jordan, *Die Herkunft der Sterne* (Stuttgart, 1947).

[50] *Ibid.*, p. 255.

> It is clear that an expanding universe can only be stationary [*i.e.*, have constant mean density, etc.] if matter is continuously created within it. The required rate of creation, which follows simply from the mean density and the rate of expansion, can be estimated as at most one particle of proton mass per liter per 10^9 years. In interpreting the universe as stationary we have to assume that such a process of creation is operative.[51]

By combining the perfect cosmological principle with the velocity-distance law of expansion explained above (p. 482), these authors obtain the conclusion that the universe is both spatially and temporally infinite [52] but that the effect of distant matter on an observer tends to zero as its velocity of recession approaches the velocity of light. New galaxies are formed as older ones move away from each other, for otherwise there would be a decrease of mean density with time. Since the average rate of creation is about 10^{-43} grams per second per cubic cm. or about one new atom of hydrogen per cubic meter per 3×10^5 years, there are considerable observational difficulties in testing this result.

Hoyle states the substance of his theory as follows:

> ... Using continuous creation of matter, we shall attempt to obtain, within the framework of a general theory of relativity, but without introducing a cosmical constant, a universe satisfying the wide cosmological principle that shows the required expansion properties and in which localized condensations are continually being formed.[53]

The differences between Hoyle's theory and that of Bondi and Gold are too technical to be entered upon here. There is agreement between Hoyle and Milne that the second law of thermodynamics holds only locally, there being no large-scale "running down" towards a general heat death.[54]

These "new cosmologies" are in the process of rapid further development, and only future theoretical and observational findings will permit an evaluation of them. It may well be, however, that Dirac's time-dependence of the "constants of

---

[51] *Ibid.*, p. 256.

[52] More precisely, their universe is described by a de Sitter metric.

[53] Hoyle, *Monthl. Not. Roy. Astr. Soc.*, *op. cit.*, p. 375.

[54] Hoyle, *Nature*, *op. cit.*, pp. 197-198; Milne, *Kinematic Relativity*, *op. cit.*, p. 233.

nature," and the continuous matter-creation of Jordan, Bondi, Gold and Hoyle will turn out to be no more justified by the evidence than is Milne's inference of absolute creation from his logarithmic time-relation.

Even if it should turn out, however, that one of the hypotheses affirming the continuous "creation" (accretion) of matter is highly confirmed by future evidence, there are, it seems to me, important logical reasons why such a state of affairs would no more call for a theological interpretation than does a world in which mass (or mass-energy) is conserved. Men have invoked a divine or "outside" interfering agency as a perturbational "cause" in order to account for a *deviation* of the actual physical behavior of the universe of bodies from the behavior *which some particular physical theory calls the "normal" or "unperturbed" behavior.* It follows that whether the actual behavior of physical bodies will suggest to thinkers that an "outside cause" is interfering with an otherwise "closed universe" depends upon the physical theory which these thinkers accept. For a physical theory specifies via its laws what kind of causal evolution of a physical system is "normal" or "unperturbed." Nothing, however, but an *a priori* prejudice (whose existence is fully understandable historically) requires us to maintain that the mass of the universe must be constant unless the universe is "perturbed" by some "outside cause."

Philosophers may be tempted to suppose that the constancy of the mass of the universe is the natural state not requiring an outside "sustainer" but that *changes* in the mass with time do need to be attributed to an "outside cause" or *creator.* If future research reveals, however, that it is the "natural" state of the universe to exhibit a mass increase with time, then no "outside cause" (divine or demoniacal) need be postulated as the "cause" of what is only a deviation from the "normal state of the world" *as conceived on some particular physical theory or theories!* The new physical theory, whether Jordan's or Hoyle's or another theory requiring a time-increase of mass, will then simply tell us that it would be "abnormal" for the mass *not* to increase with time.

This analysis easily becomes quite plausible once it is agreed that the statement "the physical universe is physically a closed system" is not only analytic but also prescriptive of cosmological inquiry. For it is then, on one level, self-contradictory and, on another level, gratuitous to speak of *any* state of the universe as "perturbed."

ADOLF GRÜNBAUM

Lehigh University.

Announcements

The fifth annual meeting of the Mountain-Plains Philosophical Conference was held October 11-13, 1951 at the University of New Mexico, on the general theme, "Fundamental Issues in Philosophy." Members elected to the Executive Committee were Paul Crissman, Chairman; William P. Kent, Secretary-Treasurer; and Francis J. Moriarty, Edward S. Robinson, Charles W. Wallraff, and W. H. Werkmeister.

At the annual meeting of the Pacific Division of the American Philosophical Association on September 6-8, 1951 at the University of British Columbia, the following officers were elected: E. W. Strong, President; Alexander Maslow, Vice-President; Bertram E. Jessup, Secretary-Treasurer; John Goheen and Hunter Mead, members of the Executive Committee.

The following officers were elected at the annual meeting of the Eastern Division of the American Philosophical Association at Bryn Mawr College, December 27-29, 1951: President, F. S. C. Northrop; Vice-President, E. A. Burtt; Secretary, J. W. Smith; Executive Committee, Marvin Farber, Leroy E. Loemker. The 1952 meeting will be held at City College, New York City, during Christmas week.

A series of conferences on the theme "Important Aspects of North American Philosophy" was conducted at Buenos Aires from August 29th to September 18th, 1951, by El Instituto Cultural Argentino Norteamericano, with papers by Professors Francisco Romero, Adolfo P. Carpio, and Vicente Fatone.

The third annual meeting of the Metaphysical Society of America will be held at Yale on March 22nd at the Hall of Graduate Studies beginning at 10:30 A.M. The following papers will be read: "The Hierarchy of Essences," by Mortimer J. Adler; "Action: A Category of Existence," by John Wild; "The Past: Its Nature and Reality," Presidential Address by Paul Weiss; "Creativity and the Other," by Isabel Stearns; "The Philosophy of Formal Systems," by Haskell B. Curry; and "Ontological Categories for Language," by Arthur Burks. The meetings are open to all interested. Those wishing to join the society may communicate with the secretary, Professor

Ellen Haring, Wellesley College, Wellesley, Mass. The annual membership fee is $1.00.

The twenty-sixth annual meeting of the American Catholic Philosophical Association will take place at the Hotel Statler, Cleveland, Ohio, on April 15th and 16th, 1952. The general theme will be "Philosophy and the Experimental Sciences."

Professor Ralph Gilbert Ross, formerly of New York University, has been appointed Professor and Head of the Humanities Program in the Department of General Studies at the University of Minnesota.

Professor Arnold J. Toynbee of the University of London has been named to give the Gifford Lectures at the University of Edinburgh in 1952-53 and 1953-54.

Professor D. W. Gotschalk has been appointed chairman of the department of philosophy at the University of Illinois.

The Fourth Interamerican Congress of Philosophy will meet in Havana, Cuba, from the 20th to the 31st of January, 1953. In addition to sections on special fields, plenary sessions are planned on the topics (1) The Problem of the Historicity of Philosophy, (2) The Essence and Destiny of Man. Inquiries may be directed to the Secretary, Professor Pedro V. Aja Jorge, Santa Catalina número 105 (altos), Vibora, Havana, Cuba.

The Institute for the Unity of Science is offering a prize of $500 for the best essay on the theme "Mathematical Logic as a Tool of Analysis: Its Uses and Achievements in the Sciences and Philosophy." Two additional prizes of $200 each will be given for the next best two essays. This is an international contest, and is open to everyone. Essays must not exceed 25,000 words. They may be written in English, French, or German, and must be submitted before January 1, 1953. Further information on the contest can be obtained from the Institute for the Unity of Science, American Academy of Arts and Sciences, 28 Newbury Street, Boston 16, Massachusetts.

Books Received

(Listing does not preclude a subsequent review)

Anselm: *Proslogion.* Text and translation into Spanish. La Plata, Argentina: Universidad Nacional de La Plata, 1950. 138 pp.

Aristotle's de Anima with the Commentary of St. Thomas Aquinas. Translated by Kenelm Foster and Sylvester Humphries, with an introduction by Ivo Thomas. New Haven: Yale University Press, 1951. 504 pp. $6.50.

Albert G. A. Balz: *Cartesian Studies.* New York: Columbia University Press, 1951. 328 pp. $4.50.

Raymond Bayer: *Merleau-Ponty's Existentialism.* The University of Buffalo Studies, Vol. 19, No. 3. Buffalo: The University of Buffalo, 1951. 10 pp.

Rabbi Ben Zion Bokser: *The Wisdom of the Talmud.* New York: Philosophical Library, 1951. 180 pp. $3.75.

Vernon J. Bourke: *Ethics.* New York: The Macmillan Co., 1951. 497 pp. $4.25.

Bruno, Baron v. Freytag gen. Löringhoff: *Philosophical Problems of Mathematics.* New York: Philosophical Library, 1951. 88 pp. $2.75.

Justus Buchler: *Toward a General Theory of Human Judgement.* New York: Columbia University Press, 1951. 176 pp. $2.75.

Edward Conze: *Buddhism, Its Essence and Development.* With a preface by Arthur Waley. New York: Philosophical Library, 1951. 212 pp. $6.00.

Thomas E. Davitt: *The Nature of Law.* St. Louis: B. Herder Book Co., 1951. 274 pp. $4.00.

Falasha Anthology. Yale Judaica Series, Vol. VI. Translated from Ethiopic sources with an introduction by Wolf Leslau. New Haven: Yale University Press, 1951. xliii + 222 pp. $4.00.

James K. Feibleman: *Ontology.* Baltimore: The Johns Hopkins Press, 1951. 830 pp. $9.75.

Ralph Tyler Flewelling: *Conflict and Conciliation of Cultures.* Stockton, Cal.: College of the Pacific Press, 1951. 106 pp.

E. J. Furlong: *A Study in Memory.* Edinburgh: Thomas Nelson and Sons, 1951. 109 pp. 12/6.

Richard Hoggart: *Auden, An Introductory Essay.* New Haven: Yale University Press, 1951. 256 pp. $3.75.

Mark Holloway: *Heavens on Earth: Utopian Communities in America 1680-1880.* New York: Library Publishers Inc., 1951. 240 pp. $4.75.

Clark L. Hull: *Essentials of Behavior.* New Haven: Yale University Press, 1951. 144 pp. $2.75.

Karl Jaspers: *Way to Wisdom,* An Introduction to Philosophy. Translated by Ralph Manheim. New Haven: Yale University Press, 1951. 208 pp. $3.00.

Joergen Joergensen: *The Development of Logical Empiricism.* Foundations of the Unity of Science, Vol. II, No. 9. Chicago: The University of Chicago Press, 1951. 100 pp. $1.25.

Immanuel Kant: *Foundations of the Metaphysics of Morals; What is Enlightenment?* and a passage from *The Metaphysics of Morals.* Translated and edited with an introduction by Lewis White Beck. Chicago: The University of Chicago Press, 1950. xii + 80 pp. $0.75.

Thomas S. Kepler: *Contemporary Religious Thought.* An anthology. New York and Nashville: Abingdon-Cokesbury Press. 1951. 423 pp. $4.00.

Alexandre Koyré: *Études sur l'Histoire de la Pensée Philosophique en Russie*. Paris: J. Vrin, 1950. 224 pp.

Hans-Hermann Kritzinger: *Zur Philosophie der Ueberwelt*. Tübingen: Verlag J. C. B. Mohr (Paul Siebeck), 1951. 64 pp. DM 3.80.

Richard Kroner: *Culture and Faith*. Chicago: The University of Chicago Press, 1951. 278 pp. $5.00.

The Book of Acquisition (The Code of Maimonides, Book Twelve). Yale Judaica Series, Vol. V. Translated from the Hebrew by Isaac Klein. New Haven: Yale University Press, 1951. 335 pp. $5.00.

Leland Mathis: *Notes on the Theory of Progress*. Riverside, Ill.: Pine Avenue Publisher, 1951. 63 pp. $1.00.

François Mauriac: *Men I Hold Great*. Translated by Elsie Pell. New York: Philosophical Library, 1951. 130 pp. $3.00.

N. R. Murphy: *The Interpretation of Plato's Republic*. New York: Oxford University Press, 1951. 247 pp. $3.25.

Charles A. Muses: *Illumination on Jacob Boehme*: The Work of Dionysius Andreas Freher. New York: King's Crown Press, 1951. 201 pp. $3.50.

Human Destiny. Edited by William D. Nietmann. Stockton, Cal.: College of the Pacific Press, 1951. 87 pp. $1.00.

Martin Persson Nilsson: *A History of Greek Religion*. Second edition. Translated by F. J. Fielden. New York: Oxford University Press, 1949. 316 pp. $3.00.

W. Donald Oliver: *Theory of Order*. Yellow Springs, Ohio: The Antioch Press, 1951. 345 pp. $5.00.

Emmanuela Polimeni: *Léon Bloy. The Pauper Prophet*. New York: Philosophical Library, 1951. 119 pp. $2.75.

Dhan Raj: *T. L. Vaswani*. Privately printed by the author. 39 pp.

Fritz-Joachim von Rintelen: *Philosophie der Endlichkeit*. Meisenheim/Glan: Westkulturverlag Anton Hain, 1951. 490 pp.

George A. Rubissow: *The House of Life*. New York: The Ricardo Press, 1951. 381 pp. $4.00.

S. Stouffer et al.: *The American Soldier*. Princeton: Princeton University Press. 1951. 2 vols., 600 + 675 pp. Separately $7.50 each; together, $13.50.

A. E. Teale: *Kantian Ethics*. New York: Oxford University Press, 1951. 328 pp. $4.25.

Paul Tillich: *Systematic Theology*. Volume I. Chicago: The University of Chicago Press, 1951. 300 pp. $5.00.

T. L. Vaswani: *Gita: Meditations* (Vol. I). Poona, India: Gita Publishing House. 144 pp. $2.00.

T. L. Vaswani: *A Prophet of the People*. Poona, India: Gita Publishing House. 74 pp. $1.00.

W. H. Walsh: *An Introduction to Philosophy of History*. New York: Longmans, Greenand Co., 1951. (Hutchinson's University Library.) 173 pp. Text ed., $1.60; trade ed., $2.00.

John M. Warbeke: *The Power of Art*. New York: Philosophical Library, 1951. 493 pp. $6.00.

Logic for Living: Dialogues from the Classroom of Henry Horace Williams. Edited by Jane Ross Hammer. New York: Philosophical Library, 1951. 281 pp. $3.75.

Psychoanalysis and Culture: Essays in Honor of Géza Róheim. Edited by George Wilbur and Warner Muensterberger. New York: International Universities Press, 1951. 462 pp. $10.00.

ONTOLOGY

•

James K. Feibleman

A work in speculative metaphysics — modified by the findings of the positivists, constructed to include the sciences — this book should provide the academic world with some juicy bones of contention in virtually every field of intellectual activity..... **6 x 9, 830 pp., $9.75**

DESCRIPTIVE FOLDER ON REQUEST

ORDER FROM

JOHNS HOPKINS PRESS
BALTIMORE, 18 MARYLAND

THE RUNES DICTIONARY OF PHILOSOPHY

Edited by

DAGOBERT D. RUNES, Ph.D.

with the collaboration of

72 EMINENT SCHOLARS

This compact, handy volume, all-embracing in content, clear in exposition, objective in viewpoint and authoritative, is invaluable for the teacher, the student, and the layman.

"By far the most authoritative book of its kind."
— *Professor Karl Jaspers*

INCLUDED ARE BIOGRAPHIES OF ANCIENT AND MODERN PHILOSOPHERS

Used in leading universities and colleges as auxiliary text material

•

$6.00

Expedite Shipment by prepayment

PHILOSOPHICAL LIBRARY
Publishers
15 EAST 40 ST., DESK 605
New York 16, N.Y.

Royce's Social Infinite

The Community of Interpretation

JOHN EDWIN SMITH

Evaluates the much neglected idea of community in which Royce's religious aspect of philosophy culminates.

"It is important that a voice like Royce's should not be prematurely silenced and that an able young philosopher should have brought back Royce's insights and made them relevant to the current philosophical debates..." Reinhold Niebuhr, *The New York Times Book Review*

"Professor Smith's book should encourage Christian scholars to take a new look at Royce. Contemporary critics have been prone to stigmatize Royce as an Hegelian Idealist, and Smith again makes clear that such an interpretation is erroneous. The book is an excellent illustration of the very interpretative process which constitutes its theme."
James Luther Martin, *Christianity and Society*

"...Smith has made a solid contribution to philosophical and religious literature on both Peirce and Royce..."
John K. McCreary, *Journal of Religion*

THE LIBERAL ARTS PRESS, INC.
153 West 72nd Street
New York 23, N.Y.

xiii + 176 pages $2.75

THE PHILOSOPHICAL QUARTERLY

(Published by The University of St. Andrews for The Scots Philosophical Club)

The policy of this journal is to publish work of a high academic standard in all branches of philosophy. Special attention is given to the critical surveying of recent philosophical literature, and to book reviewing over a wide field.

Contributors to the 1952 issues will include: Professor G. Vlastos (Cornell University, N.Y.), Professor U. Spirito (Rome), Professor J. N. Findlay (London), J. O. Urmson (Christ Church, Oxford), I. Leclerc (Glasgow), Professor A. Child (Chicago), Z. Barbu (Glasgow), Professor A. D. Ritchie (Edinburgh).

The philosophical surveys to be published in 1952 will cover important work published since 1945 on Philosophy of History, Later Greek Philosophy, and Medieval Philosophy.

The annual subscription is £1 or $3.00, for orders placed direct with the Editor. Orders placed through a bookseller or agent will be charged at the full retail price of £1-4s. or $4.00. Single issues are sold at 6s. or $1.00. Drafts should be made payable to *The Philosophical Quarterly* a/c, Royal Bank of Scotland, St. Andrews, Fife. MSS and all other communications, including those from prospective subscribers, should be addressed to the Editor, T. M. Knox, Professor of Moral Philosophy in the University of St. Andrews, Scotland.

THE JOURNAL OF SYMBOLIC LOGIC

Edited by Alonzo Church and S. C. Kleene

An international journal, publishing contributions to symbolic logic in English, French, and German. Volumes I and III together include a complete bibliography of symbolic logic for the period 1666-1935, indexed by authors and by subjects. A complete current bibliography of literature in the field, both books and articles, from Jan. 1, 1936, is provided by prompt publication of critical reviews.

•

Published Quarterly by The

ASSOCIATION FOR SYMBOLIC LOGIC

Annual membership, including subscription to the Journal, $5.00. Current subscription, $5.00. Completed volumes, $6.00. Single numbers, $1.75; bibliographical number, $2.00. Offprints of the list of additions, corrections, and indices to the bibliography, $1.25.

Application for membership or subscription should be sent to Clifford D. Firestone, Secretary-Treasurer, Rutgers University, New Brunswick, New Jersey.

January **MIND** 1952

CONTENTS

I. The Analogy of Feeling: STUART HAMPSHIRE.
II. On Describing: S. E. TOULMIN and K. BAIER.
III. Probability-Sentences: E. H. HUTTEN.
IV. Logical Form: DONALD KALISH.
V. Discussions:
A Note on Truth: W. H. WALSH.
Time Order for Minds: JOHN C. BEGG.
The Incongruity of Counterparts: DAVID PEARS.
On *Sinn* as a Combination of Physical Properties: RICHARD RUDNER.
Heterological and Homological: J. C. GREGORY.
Locke and the First Earl of Shaftesbury: P. LASLETT.
VI. Critical Notices:
S. E. Toulmin, *An Examination of the Place of Reason in Ethics*: C. D. BROAD.
Paul Wilpert, *Zwei aristotelische Frühschriften über die Ideenlehre*: J. L. ACKRILL.
H. E. Runner, *The Development of Aristotle illustrated from the Earliest Books of the Physics*: W. K. C. GUTHRIE.
VII. New Books.
VIII. Notes.
IX. List of Officers and Members of the Mind Association.

Published for the Mind Association by
THOMAS NELSON & SONS LTD.
Parkside Works Edinburgh 9

Individual subscription (yearly)	$ 5.00
Individual subscription (foreign, yearly)	6.00
Student subscription (yearly)	3.50
Sustaining institutional subscription (yearly)	25.00
Life subscription	100.00
Charter subscription	200.00
Previous volumes	10.00 each

Institutions may subscribe at the individual yearly rate; those, however, interested in the support of this review may subscribe at the Sustaining Institutional rate of $25.00 yearly, for which they receive three copies per issue.

Institutional charter subscribers receive three copies per issue.

This Review is sent free to foreign libraries now unable to pay for it, a service made possible in part by the life, charter and sustaining institutional subscribers.

Charter Subscribers: James E. Publishing Co. Kenkel, Henry B. Leon; College of St. Rose; Harvard University; Loyola Seminary; John F. Molloy; Mt. St. Mary Seminary; Iona Publications; Rhode Island; West Baden University; Woodstock College; [illegible].

Life Subscribers: Maurice J. Adam; Ruth Nuzum Anders; Henry Cohen; A. Dolores Conway; [illegible]; Francis X. Florent; Clarion Hendel; W. E. Hocking; Leonard [illegible]; C. W. Kimmons; Roland McKeon; Arnold Mesinger; R. P. Mooney; F. S. C. Northrop; Fr. Gerald Phelan; Hunter Pierson; John T. Purcell; Philip A. Sprague; Margaret Wyse.